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=> s nanoparticles (3a) oligonucleotide?
L1 230 NANOPARTICLES (3A) OLIGONUCLEOTIDE?

=> s l1 and hybridization
L2 123 L1 AND HYBRIDIZATION

=> s l2 and select?
L3 103 L2 AND SELECT?

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4 89 DUP REM L3 (14 DUPLICATES REMOVED)

=> s l4 and complementa?
L5 85 L4 AND COMPLEMENTA?

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=> s l5 and nanoparticles (2a) oilgonulceotides
L6 0 L5 AND NANOPARTICLES (2A) OILGONULCEOTIDES

=> s l5 and particles (2a) oligonucleotides
L7 29 L5 AND PARTICLES (2A) OLIGONUCLEOTIDES

=> d l7 bid b abs 1-29
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09567863

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L7 ANSWER 1 OF 29 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2003:98050 BIOSIS
DN PREV200300098050
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor.
AU Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas A. (1)
CS (1) Chicago, IL, USA USA
ASSIGNEE: Nanosphere, Inc.
PI US 6506564 January 14, 2003
SO Official Gazette of the United States Patent and Trademark Office Patents, (Jan. 14 2003) Vol. 1266, No. 2, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133.
DT Patent
LA English

L7 ANSWER 2 OF 29 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2003:82629 BIOSIS
DN PREV200300082629
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor.
AU Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
ASSIGNEE: Nanosphere, Inc.
PI US 6495324 December 17, 2002
SO Official Gazette of the United States Patent and Trademark Office Patents, (Dec. 17 2002) Vol. 1265, No. 3, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133.
DT Patent
LA English

L7 ANSWER 3 OF 29 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2002:447124 BIOSIS
DN PREV200200447124
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor.
AU Mirkin, Chad A. (1); Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
CS (1) Wilmette, IL USA
ASSIGNEE: Nanosphere, Inc., Northbrook, IL, USA
PI US 6417340 July 09, 2002
SO Official Gazette of the United States Patent and Trademark Office Patents, (July 9, 2002) Vol. 1260, No. 2, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133.
DT Patent
LA English

L7 ANSWER 4 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2003:77415 CAPLUS
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Park, So-Jung
PA USA
SO U.S. Pat. Appl. Publ., 178 pp., Cont.-in-part of U.S. Ser. No. 760,500. CODEN: USXXCO
DT Patent
LA English

FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 9804740	A1	19980205	WO 1997-US12783	19970721
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	US 2002155442	A1	20021024	US 2001-760500	20010112
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	US 2002172953	A1	20021121	US 2001-927777	20010810
	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
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	WO 2002079490	A2	20021010	WO 2002-US11158	20020327
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	US 2002192687	A1	20021219	US 2002-108211	20020327
PRAI	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		

US 1999-240755	B2	19990129
US 1999-344667	A2	19990625
US 2000-176409P	P	20000113
US 2000-192699P	P	20000328
US 2000-200161P	P	20000426
US 2000-254392P	P	20001208
US 2000-255235P	P	20001211
US 2001-760500	A2	20010112
US 1996-31809	A	19960729
US 2000-213906P	P	20000626
US 2000-603830	A	20000626
US 2000-224631P	P	20000811
US 2000-254418P	P	20001208
US 2000-255236P	P	20001211
US 2001-820279	A	20010328
WO 2001-US10071	W	20010328
US 2001-282640P	P	20010409
US 2001-927777	A	20010810
WO 2001-US25237	W	20010810
US 2001-350560P	P	20011113
WO 2001-US46418	W	20011207

L7 ANSWER 5 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:889442 CAPLUS
DN 137:380916
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-jung
PA USA
SO U.S. Pat. Appl. Publ., 181 pp., Cont.-in-part of U.S. Ser. No. 820,279.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002172953	A1	20021121	US 2001-927777	20010810
WO 9804740	A1	19980205	WO 1997-US12783	19970721
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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US 6361944	B1	20020326	US 1999-344667	19990625
US 6506564	B1	20030114	US 2000-603830	20000626
US 2002155442	A1	20021024	US 2001-760500	20010112
US 2003022169	A1	20030130	US 2001-820279	20010328
WO 2002046472	A2	20020613	WO 2001-US46418	20011207
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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PRAI	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	B2	19990129		
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	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-603830	A2	20000626		
	US 2000-224631P	P	20000811		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
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	US 2001-820279	A2	20010328		
	US 1996-31809	A	19960729		
	US 2000-213906P	P	20000626		
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	US 2000-255236P	P	20001211		
	US 2001-282640P	P	20010409		
	US 2001-927777	A	20010810		
	WO 2001-US46418	W	20011207		

L7 ANSWER 6 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:814729 CAPLUS
DN 137:334003
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas A.; Garimella, Viswanadham; Li, Zhi
PA USA
SO U.S. Pat. Appl. Publ., 141 pp., Cont.-in-part of U.S. 6,361,944.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002155442	A1	20021024	US 2001-760500	20010112
WO 9804740	A1	19980205	WO 1997-US12783	19970721
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US 6361944	B1	20020326	US 1999-344667	19990625
WO 2001051665	A2	20010719	WO 2001-US1190	20010112
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WO 2002018643 A2 20020307 WO 2001-US25237 20010810
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AU 2001081248 A5 20020313 AU 2001-81248 20010810
US 2002172953 A1 20021121 US 2001-927777 20010810
WO 2002046472 A2 20020613 WO 2001-US46418 20011207
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AU 2002030593 A5 20020618 AU 2002-30593 20011207

PRAI US 1996-31809P P 19960729
WO 1997-US12783 A2 19970721
US 1999-240755 B2 19990129
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US 2000-176409P P 20000113
US 2000-200161P P 20000426
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US 1996-31809 A 19960729
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US 2001-820279 A 20010328
US 2001-282640P P 20010409
US 2001-927777 A 20010810
WO 2001-US25237 W 20010810
WO 2001-US46418 W 20011207

L7 ANSWER 7 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:449926 CAPLUS
DN 137:29003
TI **Nanoparticles** having **oligonucleotides** attached for **hybridization** detection of nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-Jung
PA Nanosphere, Inc., USA

09567863

SO PCT Int. Appl., 442 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

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PI	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
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	US 2000-255235P	P	20001211		
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	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	B2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	US 2000-603830	A2	20000626		
	US 2000-224631P	P	20000811		
	WO 2001-US46418	W	20011207		

L7 ANSWER 8 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:237326 CAPLUS
DN 136:274192
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses in assays
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
PA Nanosphere, Inc., USA
SO U.S., 77 pp., Cont. of U.S. Ser. No. 240,755.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 6361944	B1	20020326	US 1999-344667	19990625
	WO 9804740	A1	19980205	WO 1997-US12783	19970721
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US,				

UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG

WO	2001000876	A1	20010104	WO 2000-US17507	20000626

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP	1198591	A1	20020424	EP 2000-941713	20000626

R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL

US	6506564	B1	20030114	US 2000-603830	20000626
JP	2003503699	T2	20030128	JP 2001-506866	20000626
US	6417340	B1	20020709	US 2000-693352	20001020
US	6495324	B1	20021217	US 2000-693005	20001020
US	2002155442	A1	20021024	US 2001-760500	20010112
US	2003022169	A1	20030130	US 2001-820279	20010328
US	2002172953	A1	20021121	US 2001-927777	20010810
US	2002146720	A1	20021010	US 2001-961949	20010920
US	2002155458	A1	20021024	US 2001-967409	20010928
US	2002164605	A1	20021107	US 2001-966312	20010928
US	2002182611	A1	20021205	US 2001-966491	20010928
US	2002127574	A1	20020912	US 2001-973788	20011010
US	2002137070	A1	20020926	US 2001-973638	20011010
US	2002137071	A1	20020926	US 2001-974007	20011010
US	2002155459	A1	20021024	US 2001-975062	20011011
US	2002160381	A1	20021031	US 2001-975498	20011011
US	2002137072	A1	20020926	US 2001-976617	20011012
US	2002155461	A1	20021024	US 2001-976378	20011012
US	2002155462	A1	20021024	US 2001-976577	20011012
US	2002182613	A1	20021205	US 2001-976971	20011012

PRAI	US 1996-31809P	P	19960729
	WO 1997-US12783	A2	19970721
	US 1999-240755	A2	19990129
	US 1996-31809	A	19960729
	US 1999-344667	A	19990625
	US 2000-176409P	P	20000113
	US 2000-192699P	P	20000328
	US 2000-200161P	P	20000426
	US 2000-213906P	P	20000626
	US 2000-603830	A2	20000626
	WO 2000-US17507	W	20000626
	US 2000-224631P	P	20000811
	US 2000-254392P	P	20001208
	US 2000-255235P	P	20001211
	US 2001-760500	A2	20010112
	US 2001-820279	A2	20010328

RE.CNT 94 THERE ARE 94 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:172145 CAPLUS
DN 136:227890
TI **Nanoparticles** having **oligonucleotides** attached for detection of nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James

J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-jung
PA Nanosphere Inc., USA
SO PCT Int. Appl., 412 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2002018643	A2	20020307	WO 2001-US25237	20010810
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
US 2002155442	A1	20021024	US 2001-760500	20010112
US 2003022169	A1	20030130	US 2001-820279	20010328
AU 2001081248	A5	20020313	AU 2001-81248	20010810
PRAI US 2000-224631P	P	20000811		
US 2000-254392P	P	20001208		
US 2000-255235P	P	20001211		
US 2001-760500	A	20010112		
US 2001-820279	A	20010328		
US 1996-31809P	P	19960729		
WO 1997-US12783	A2	19970721		
US 1999-240755	B2	19990129		
US 1999-344667	A2	19990625		
US 2000-176409P	P	20000113		
US 2000-192699P	P	20000328		
US 2000-200161P	P	20000426		
US 2000-213906P	P	20000626		
WO 2001-US25237	W	20010810		

L7 ANSWER 10 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2001:731085 CAPLUS
DN 135:283930
TI Nanoparticle-oligonucleotide conjugates and their uses in nucleic acid detection and nanomaterial preparation
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Park, So-Jung; Li, Zhi
PA Nanosphere Inc., USA
SO PCT Int. Appl., 403 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001073123	A2	20011004	WO 2001-US10071	20010328
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF,				

BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 2002079490	A2	20021010	WO 2002-US11158	20020327

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

	US 2002192687	A1	20021219	US 2002-108211	20020327
PRAI	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	US 2000-603830	A	20000626		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2001-760500	A	20010112		
	US 2001-820279	A	20010328		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	A2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	WO 2001-US10071	W	20010328		
	US 2001-350560P	P	20011113		

L7 ANSWER 11 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2001:526225 CAPLUS
DN 135:133079
TI Immobilization of **oligonucleotides** on **nanoparticles** and their use in nucleic acid **hybridization**
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Li, Zhi
PA Nanosphere Inc., USA
SO PCT Int. Appl., 323 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001051665	A2	20010719	WO 2001-US1190	20010112
	WO 2001051665	C2	20021031		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
PRAI	US 2000-176409P	P	20000113		
	US 2000-200161P	P	20000426		

	US 2000-603830	A	20000626
	US 2001-760500	A	20010112
	US 1996-31809P	P	19960729
	WO 1997-US12783	A2	19970721
	US 1999-240755	A2	19990129
	US 1999-344667	A2	19990625
	US 2000-213906P	P	20000626

L7 ANSWER 12 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 1998:106053 CAPLUS
DN 128:176927
TI **Nanoparticles** having **oligonucleotides** attached on surface and use for detecting nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
PA Northwestern University, USA; Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
SO PCT Int. Appl., 144 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9804740	A1	19980205	WO 1997-US12783	19970721
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9740434	A1	19980220	AU 1997-40434	19970721
	EP 918885	A1	19990602	EP 1997-938010	19970721
	R: CH, DE, ES, FR, GB, IT, LI, SE				
	JP 2000516460	T2	20001212	JP 1998-508917	19970721
	US 6361944	B1	20020326	US 1999-344667	19990625
	US 6506564	B1	20030114	US 2000-603830	20000626
	US 6417340	B1	20020709	US 2000-693352	20001020
	US 6495324	B1	20021217	US 2000-693005	20001020
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	US 2002137058	A1	20020926	US 2001-923625	20010807
	US 2002172953	A1	20021121	US 2001-927777	20010810
	US 2002146720	A1	20021010	US 2001-961949	20010920
	US 2002155458	A1	20021024	US 2001-967409	20010928
	US 2002164605	A1	20021107	US 2001-966312	20010928
	US 2002182611	A1	20021205	US 2001-966491	20010928
	US 2002127574	A1	20020912	US 2001-973788	20011010
	US 2002137070	A1	20020926	US 2001-973638	20011010
	US 2002137071	A1	20020926	US 2001-974007	20011010
	US 2002155459	A1	20021024	US 2001-975062	20011011
	US 2002160381	A1	20021031	US 2001-975498	20011011
	US 2002137072	A1	20020926	US 2001-976617	20011012
	US 2002155461	A1	20021024	US 2001-976378	20011012
	US 2002155462	A1	20021024	US 2001-976577	20011012
	US 2002182613	A1	20021205	US 2001-976971	20011012
PRAI	US 1996-31809	A	19960729		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	W	19970721		
	US 1999-240755	A2	19990129		

US 1999-344667 A2 19990625
US 2000-176409P P 20000113
US 2000-192699P P 20000328
US 2000-200161P P 20000426
US 2000-213906P P 20000626
US 2000-603830 A2 20000626
US 2000-224631P P 20000811
US 2000-254392P P 20001208
US 2000-255235P P 20001211
US 2001-760500 A2 20010112
US 2001-820279 A2 20010328

L7 ANSWER 13 OF 29 WPIDS (C) 2003 THOMSON DERWENT
AN 2003-092900 [08] WPIDS
CR 1998-145263 [13]; 2001-061976 [07]; 2001-451868 [48]; 2001-656926 [75]; 2002-258024 [30]; 2002-608256 [65]
DNC C2003-023163
TI Detecting for the presence of target analyte, comprises providing a particle complex probe having **particles** with bound **oligonucleotides**, DNA barcodes and oligonucleotides having specific binding complement to a target analyte.
DC B04 D16
IN MIRKIN, C A; NAM, J; PARK, S
PA (MIRK-I) MIRKIN C A; (NAMJ-I) NAM J; (PARK-I) PARK S; (NANO-N) NANOSPHERE INC
CYC 100
PI WO 2002079490 A2 20021010 (200308)* EN 66p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
US 2002192687 A1 20021219 (200308)
ADT WO 2002079490 A2 WO 2002-US11158 20020327; US 2002192687 A1 Provisional US 2000-192699P 20000328, CIP of US 2001-820279 20010328, Provisional US 2001-350560P 20011113, US 2002-108211 20020327
PRAI US 2001-350560P 20011113; US 2001-820279 20010328; WO 2001-US10071 20010328

L7 ANSWER 14 OF 29 USPATFULL
AN 2002:337329 USPATFULL
TI Bio-barcodes based on **oligonucleotide**-modified **nanoparticles**
IN Mirkin, Chad A., Willmette, IL, UNITED STATES
Park, So-Jung, Evanston, IL, UNITED STATES
Nam, Jwa-Min, Evanston, IL, UNITED STATES
PI US 2002192687 A1 20021219
AI US 2002-108211 A1 20020327 (10)
RLI Continuation-in-part of Ser. No. US 2001-820279, filed on 28 Mar 2001, PENDING
PRAI WO 2001-US10071 20010328
US 2000-192699P 20000328 (60)
US 2001-350560P 20011113 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 41
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)

09567863

LN.CNT 2185
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 15 OF 29 USPATFULL
AN 2002:322449 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182613 A1 20021205
AI US 2001-976971 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 172
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6563
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 16 OF 29 USPATFULL
AN 2002:322447 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182611 A1 20021205
AI US 2001-966491 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 190
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6646
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

<------User Break------>

L7 ANSWER 17 OF 29 USPATFULL
AN 2002:294562 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Chicago, IL, UNITED STATES
Taton, Thomas A., Chicago, IL, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002164605 A1 20021107
AI US 2001-966312 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8066
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 18 OF 29 USPATFULL
AN 2002:287518 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002160381 A1 20021031
AI US 2001-975498 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, PENDING Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 5695
=> d l7 bib abs 1-29

L7 ANSWER 1 OF 29 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2003:98050 BIOSIS
DN PREV200300098050
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor.
AU Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas A. (1)
CS (1) Chicago, IL, USA USA
ASSIGNEE: Nanosphere, Inc.
PI US 6506564 January 14, 2003
SO Official Gazette of the United States Patent and Trademark Office Patents, (Jan. 14 2003) Vol. 1266, No. 2, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133.
DT Patent
LA English
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

L7 ANSWER 2 OF 29 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2003:82629 BIOSIS
DN PREV200300082629
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor.
AU Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
ASSIGNEE: Nanosphere, Inc.
PI US 6495324 December 17, 2002
SO Official Gazette of the United States Patent and Trademark Office Patents, (Dec. 17 2002) Vol. 1265, No. 3, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133.
DT Patent
LA English
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from

other nucleic acids.

L7 ANSWER 3 OF 29 BIOSIS COPYRIGHT 2003 BIOLOGICAL ABSTRACTS INC.
AN 2002:447124 BIOSIS
DN PREV200200447124
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor.
AU Mirkin, Chad A. (1); Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
CS (1) Wilmette, IL USA
ASSIGNEE: Nanosphere, Inc., Northbrook, IL, USA
PI US 6417340 July 09, 2002
SO Official Gazette of the United States Patent and Trademark Office Patents, (July 9, 2002) Vol. 1260, No. 2, pp. No Pagination. http://www.uspto.gov/web/menu/patdata.html. e-file. ISSN: 0098-1133.
DT Patent
LA English
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

L7 ANSWER 4 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2003:77415 CAPLUS
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Park, So-Jung
PA USA
SO U.S. Pat. Appl. Publ., 178 pp., Cont.-in-part of U.S. Ser. No. 760,500. CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2003022169	A1	20030130	US 2001-820279	20010328
WO 9804740	A1	19980205	WO 1997-US12783	19970721
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
US 6361944	B1	20020326	US 1999-344667	19990625
US 2002155442	A1	20021024	US 2001-760500	20010112
WO 2001073123	A2	20011004	WO 2001-US10071	20010328
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SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU,
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WO 2002018643 A2 20020307 WO 2001-US25237 20010810
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
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GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
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RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ,
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BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2001081248 A5 20020313 AU 2001-81248 20010810
US 2002172953 A1 20021121 US 2001-927777 20010810
WO 2002046472 A2 20020613 WO 2001-US46418 20011207
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
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US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
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BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU 2002030593 A5 20020618 AU 2002-30593 20011207
WO 2002079490 A2 20021010 WO 2002-US11158 20020327
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

US 2002192687 A1 20021219 US 2002-108211 20020327

PRAI US 1996-31809P P 19960729
WO 1997-US12783 A2 19970721
US 1999-240755 B2 19990129
US 1999-344667 A2 19990625
US 2000-176409P P 20000113
US 2000-192699P P 20000328
US 2000-200161P P 20000426
US 2000-254392P P 20001208
US 2000-255235P P 20001211
US 2001-760500 A2 20010112
US 1996-31809 A 19960729
US 2000-213906P P 20000626
US 2000-603830 A 20000626
US 2000-224631P P 20000811
US 2000-254418P P 20001208
US 2000-255236P P 20001211
US 2001-820279 A 20010328
WO 2001-US10071 W 20010328
US 2001-282640P P 20010409
US 2001-927777 A 20010810
WO 2001-US25237 W 20010810

US 2001-350560P P 20011113
WO 2001-US46418 W 20011207

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. Also disclosed is a method of sepg. a **selected** nucleic acid from other nucleic acids. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Thus, a nanoparticle assembly was prepd. using streptavidin complexed to four biotinylated **oligonucleotides**, **oligonucleotide**-modified gold **nanoparticles**, and a linker **oligonucleotide** **complementary** to both the streptavidin-assocd. oligonucleotides and to the oligonucleotides attached to the gold nanoparticles. The chem. and phys. properties of this assembly were studied. The streptavidin was not adsorbed to the gold nanoparticle surface due to the d. of the immobilized oligonucleotides. This expt. therefore points towards a way of specifically immobilizing proteins on nanoparticle surfaces through very specific interactions in a way that will not substantially perturb the activity of the protein.

L7 ANSWER 5 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:889442 CAPLUS
DN 137:380916
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-jung
PA USA
SO U.S. Pat. Appl. Publ., 181 pp., Cont.-in-part of U.S. Ser. No. 820,279.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002172953	A1	20021121	US 2001-927777	20010810
	WO 9804740	A1	19980205	WO 1997-US12783	19970721
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 6361944	B1	20020326	US 1999-344667	19990625
	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,				

CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,
US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU	2002030593	A5	20020618	AU 2002-30593	20011207
PRAI	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	B2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-603830	A2	20000626		
	US 2000-224631P	P	20000811		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2001-760500	A2	20010112		
	US 2001-820279	A2	20010328		
	US 1996-31809	A	19960729		
	US 2000-213906P	P	20000626		
	US 2000-254418P	P	20001208		
	US 2000-255236P	P	20001211		
	US 2001-282640P	P	20010409		
	US 2001-927777	A	20010810		
	WO 2001-US46418	W	20011207		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. Conjugates produced by contact of **oligonucleotides** with gold **nanoparticles** and incubation (aging) with salt soln. to overcome electrostatic repulsion exhibit improved stability with a surface d. dependent on the size and type of nanoparticles and on the length, sequence and concn. of the oligonucleotides. A surface d. of .gtoreq.10 pmol/cm2 is adequate to provide stable nanoparticle-oligonucleotide conjugates. Due to high surface d., the conjugates assemble into large aggregates in the presence of a target nucleic acid or oligonucleotide and a single base mismatch and as little as 20 fmol of target can be detected using the conjugates. **Hybridization** efficiency can be increased dramatically by the the use of recognition oligonucleotides which comprise a recognition portion and a spacer portion. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids. Many modifications of this basic method were examd., e.g., combined use of fluorophore-labeled oligonucleotide-modified latex microspheres and **oligonucleotide**-modified gold **nanoparticles**, prepn. and use of oligonucleotide-quantum dot conjugates, detection of oligonucleotide-gold nanoparticle conjugates bound to DNA microarrays by

silver staining, etc. New thiol reagents for derivatization of oligonucleotides which result in more stable oligonucleotide-nanoparticle bonds were synthesized and used. These thiol reagents included phosphoramidates of a steroid disulfide ketal and a trithiol compd. Gold nanoparticle assemblies behave as semiconductors, regardless of oligonucleotide particle interconnect length over a 24-72-nucleotide range. Finally, a method is described of moving nanoparticles such as citrate-stabilized nanoparticles and nanoparticles coated with charged biomols. through an elec. field.

L7 ANSWER 6 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:814729 CAPLUS
DN 137:334003
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas A.; Garimella, Viswanadham; Li, Zhi
PA USA
SO U.S. Pat. Appl. Publ., 141 pp., Cont.-in-part of U.S. 6,361,944.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 2002155442	A1	20021024	US 2001-760500	20010112
WO 9804740	A1	19980205	WO 1997-US12783	19970721
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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US 6361944	B1	20020326	US 1999-344667	19990625
WO 2001051665	A2	20010719	WO 2001-US1190	20010112
WO 2001051665	C2	20021031		
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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WO 2001073123	A2	20011004	WO 2001-US10071	20010328
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US 2003022169	A1	20030130	US 2001-820279	20010328
WO 2002018643	A2	20020307	WO 2001-US25237	20010810
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BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU	2001081248	A5	20020313	AU 2001-81248	20010810
US	2002172953	A1	20021121	US 2001-927777	20010810
WO	2002046472	A2	20020613	WO 2001-US46418	20011207

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
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BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG

AU	2002030593	A5	20020618	AU 2002-30593	20011207

PRAI	US 1996-31809P	P	19960729
	WO 1997-US12783	A2	19970721
	US 1999-240755	B2	19990129
	US 1999-344667	A2	19990625
	US 2000-176409P	P	20000113
	US 2000-200161P	P	20000426
	US 2000-213906P	P	20000626
	US 1996-31809	A	19960729
	US 2000-192699P	P	20000328
	US 2000-603830	A	20000626
	US 2000-224631P	P	20000811
	US 2000-254392P	P	20001208
	US 2000-254418P	P	20001208
	US 2000-255235P	P	20001211
	US 2000-255236P	P	20001211
	US 2001-760500	A	20010112
	US 2001-820279	A	20010328
	US 2001-282640P	P	20010409
	US 2001-927777	A	20010810
	WO 2001-US25237	W	20010810
	WO 2001-US46418	W	20011207

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids. Thus, gold colloid and two thiol-terminated oligonucleotides **complementary** to different regions of a target DNA were prepd. The presence of target DNA was indicated by appearance of a blue color. The target was detectable with femtomolar sensitivity. This method was applied to the detection of a PCR amplicon of anthrax protective antigen DNA. Many modifications of this basic method were examd., e.g., combined

use of fluorophore-labeled oligonucleotide-modified latex microspheres and **oligonucleotide**-modified gold **nanoparticles**, prepn. and use of oligonucleotide-quantum dot conjugates, detection of oligonucleotide-gold nanoparticle conjugates bound to DNA microarrays by silver staining, etc. New thiol reagents for derivatization of oligonucleotides which result in more stable oligonucleotide-nanoparticle bonds were synthesized and used. These thiol reagents included phosphoramidates of a steroid disulfide ketal and a trithiol compd.

L7 ANSWER 7 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:449926 CAPLUS
DN 137:29003
TI **Nanoparticles** having **oligonucleotides** attached for **hybridization** detection of nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-Jung
PA Nanosphere, Inc., USA
SO PCT Int. Appl., 442 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	US 2002172953	A1	20021121	US 2001-927777	20010810
	AU 2002030593	A5	20020618	AU 2002-30593	20011207
PRAI	US 2000-254392P	P	20001208		
	US 2000-254418P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2000-255236P	P	20001211		
	US 2001-760500	A	20010112		
	US 2001-820279	A	20010328		
	US 2001-282640P	P	20010409		
	US 2001-927777	A	20010810		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	B2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	US 2000-603830	A2	20000626		
	US 2000-224631P	P	20000811		
	WO 2001-US46418	W	20011207		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached

to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. The invention shows that it is important to achieve a balance between oligonucleotide coverage high enough to stabilize the nanoparticles to which they are attached, yet low enough so that a high percentage of the strands are accessible for **hybridization** with oligonucleotides in soln. This is achieved by adjusting salt conditions during **oligonucleotide** attachment to the **nanoparticles** to gain high **oligonucleotide** surface coverages, oligonucleotide spacer segments to reduce electrosteric interactions, and coadsorbed diluent strands to reproducibly the av. no. of **hybridization** events for each particle. Also, the nature of the tether (spacer) sequence influences the no. of oligonucleotide strands loaded onto gold nanoparticles. Gold nanoparticle-oligonucleotide conjugates using a cyclic disulfide linker serve as effective probes for detecting specific oligonucleotide sequences, and exhibit much greater stability toward dithiothreitol than corresponding conjugates prepd. with conventional mercaptohexyl group or an acyclic disulfide unit. A DNA array imaging technique based on scattered light from larger **oligonucleotide**-functionalized **nanoparticles** provides the opportunity for sensitive, ultrasensitive, multicolor labeling of DNA arrays. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids.

L7 ANSWER 8 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:237326 CAPLUS
DN 136:274192
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses in assays
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
PA Nanosphere, Inc., USA
SO U.S., 77 pp., Cont. of U.S. Ser. No. 240,755.
CODEN: USXXAM
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI US 6361944	B1	20020326	US 1999-344667	19990625
WO 9804740	A1	19980205	WO 1997-US12783	19970721
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
WO 2001000876	A1	20010104	WO 2000-US17507	20000626
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,				

SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

EP	1198591	A1	20020424	EP 2000-941713	20000626
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL				
US	6506564	B1	20030114	US 2000-603830	20000626
JP	2003503699	T2	20030128	JP 2001-506866	20000626
US	6417340	B1	20020709	US 2000-693352	20001020
US	6495324	B1	20021217	US 2000-693005	20001020
US	2002155442	A1	20021024	US 2001-760500	20010112
US	2003022169	A1	20030130	US 2001-820279	20010328
US	2002172953	A1	20021121	US 2001-927777	20010810
US	2002146720	A1	20021010	US 2001-961949	20010920
US	2002155458	A1	20021024	US 2001-967409	20010928
US	2002164605	A1	20021107	US 2001-966312	20010928
US	2002182611	A1	20021205	US 2001-966491	20010928
US	2002127574	A1	20020912	US 2001-973788	20011010
US	2002137070	A1	20020926	US 2001-973638	20011010
US	2002137071	A1	20020926	US 2001-974007	20011010
US	2002155459	A1	20021024	US 2001-975062	20011011
US	2002160381	A1	20021031	US 2001-975498	20011011
US	2002137072	A1	20020926	US 2001-976617	20011012
US	2002155461	A1	20021024	US 2001-976378	20011012
US	2002155462	A1	20021024	US 2001-976577	20011012
US	2002182613	A1	20021205	US 2001-976971	20011012

PRAI	US 1996-31809P	P	19960729
	WO 1997-US12783	A2	19970721
	US 1999-240755	A2	19990129
	US 1996-31809	A	19960729
	US 1999-344667	A	19990625
	US 2000-176409P	P	20000113
	US 2000-192699P	P	20000328
	US 2000-200161P	P	20000426
	US 2000-213906P	P	20000626
	US 2000-603830	A2	20000626
	WO 2000-US17507	W	20000626
	US 2000-224631P	P	20000811
	US 2000-254392P	P	20001208
	US 2000-255235P	P	20001211
	US 2001-760500	A2	20010112
	US 2001-820279	A2	20010328

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the oligonucleotides are attached to gold nanoparticles and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Thus, **oligonucleotide**-modified gold **nanoparticles** are attached to **oligonucleotide**-modified glass slide surfaces through DNA **hybridization** interactions with linking oligonucleotides. A variety of assays are described using the nanoparticle-oligonucleotide conjugates. Assemblies contg. quantum dots (semiconductor CdSe/ZnS core/shell nanoparticles) may also be used for the immobilization of synthetic single-stranded DNA by using org. thiol linking agents (e.g., e-mercaptopropionic acid). With DNA-functionalized

quantum dots, the assembly of hybrid assemblies made from multiple types of nanoparticle building blocks becomes feasible. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids.

RE.CNT 94 THERE ARE 94 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L7 ANSWER 9 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2002:172145 CAPLUS
DN 136:227890
TI **Nanoparticles** having **oligonucleotides** attached for detection of nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-jung
PA Nanosphere Inc., USA
SO PCT Int. Appl., 412 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002018643	A2	20020307	WO 2001-US25237	20010810
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	AU 2001081248	A5	20020313	AU 2001-81248	20010810
PRAI	US 2000-224631P	P	20000811		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2001-760500	A	20010112		
	US 2001-820279	A	20010328		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	B2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	WO 2001-US25237	W	20010810		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the

conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids.

L7 ANSWER 10 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2001:731085 CAPLUS
DN 135:283930
TI Nanoparticle-oligonucleotide conjugates and their uses in nucleic acid detection and nanomaterial preparation
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Park, So-Jung; Li, Zhi
PA Nanosphere Inc., USA
SO PCT Int. Appl., 403 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001073123	A2	20011004	WO 2001-US10071	20010328
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 2002079490	A2	20021010	WO 2002-US11158	20020327
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002192687	A1	20021219	US 2002-108211	20020327
PRAI	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	US 2000-603830	A	20000626		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2001-760500	A	20010112		
	US 2001-820279	A	20010328		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	A2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	WO 2001-US10071	W	20010328		
	US 2001-350560P	P	20011113		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of

particles having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids.

L7 ANSWER 11 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 2001:526225 CAPLUS
DN 135:133079
TI Immobilization of **oligonucleotides** on **nanoparticles** and their use in nucleic acid **hybridization**
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Li, Zhi
PA Nanosphere Inc., USA
SO PCT Int. Appl., 323 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001051665	A2	20010719	WO 2001-US1190	20010112
	WO 2001051665	C2	20021031		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
PRAI	US 2000-176409P	P	20000113		
	US 2000-200161P	P	20000426		
	US 2000-603830	A	20000626		
	US 2001-760500	A	20010112		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	A2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-213906P	P	20000626		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides

methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a **selected** nucleic acid from other nucleic acids. The prepn. of colloidal gold nanoparticles with a diam. of 23 nm from HAuCl4 is described. Particles of this size show a color change upon aggregation. 3'-Thiol terminated oligonucleotides were immobilized on the surface of these particles. Oligonucleotide dependent aggregation and color changes were demonstrated and the **hybridization** conditions optimized. The prepn. of probe labeled quantum dots is also described.

L7 ANSWER 12 OF 29 CAPLUS COPYRIGHT 2003 ACS
AN 1998:106053 CAPLUS
DN 128:176927
TI **Nanoparticles** having **oligonucleotides** attached on surface and use for detecting nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
PA Northwestern University, USA; Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert
SO PCT Int. Appl., 144 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 9804740	A1	19980205	WO 1997-US12783	19970721
W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
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AU 9740434	A1	19980220	AU 1997-40434	19970721
EP 918885	A1	19990602	EP 1997-938010	19970721
R: CH, DE, ES, FR, GB, IT, LI, SE				
JP 2000516460	T2	20001212	JP 1998-508917	19970721
US 6361944	B1	20020326	US 1999-344667	19990625
US 6506564	B1	20030114	US 2000-603830	20000626
US 6417340	B1	20020709	US 2000-693352	20001020
US 6495324	B1	20021217	US 2000-693005	20001020
US 2002155442	A1	20021024	US 2001-760500	20010112
US 2003022169	A1	20030130	US 2001-820279	20010328
US 2002137058	A1	20020926	US 2001-923625	20010807
US 2002172953	A1	20021121	US 2001-927777	20010810
US 2002146720	A1	20021010	US 2001-961949	20010920
US 2002155458	A1	20021024	US 2001-967409	20010928
US 2002164605	A1	20021107	US 2001-966312	20010928
US 2002182611	A1	20021205	US 2001-966491	20010928
US 2002127574	A1	20020912	US 2001-973788	20011010
US 2002137070	A1	20020926	US 2001-973638	20011010
US 2002137071	A1	20020926	US 2001-974007	20011010
US 2002155459	A1	20021024	US 2001-975062	20011011
US 2002160381	A1	20021031	US 2001-975498	20011011
US 2002137072	A1	20020926	US 2001-976617	20011012
US 2002155461	A1	20021024	US 2001-976378	20011012
US 2002155462	A1	20021024	US 2001-976577	20011012

09567863

US 2002182613 A1 20021205 US 2001-976971 20011012
PRAI US 1996-31809 A 19960729
US 1996-31809P P 19960729
WO 1997-US12783 W 19970721
US 1999-240755 A2 19990129
US 1999-344667 A2 19990625
US 2000-176409P P 20000113
US 2000-192699P P 20000328
US 2000-200161P P 20000426
US 2000-213906P P 20000626
US 2000-603830 A2 20000626
US 2000-224631P P 20000811
US 2000-254392P P 20001208
US 2000-255235P P 20001211
US 2001-760500 A2 20010112
US 2001-820279 A2 20010328
AB Provided are methods of detecting a nucleic acid using **nanoparticles** having **oligonucleotides** attached on the surface. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached on the surface. The **oligonucleotides** attached to **nanoparticles** have sequences **complementary** to at least a portion of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. Also provided are compns. and kits comprising nanoparticles made of gold and oligonucleotides labeled with fluorescent mols. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. A method of sepg. a **selected** nucleic acid from other nucleic acids is also described.

L7 ANSWER 13 OF 29 WPIDS (C) 2003 THOMSON DERWENT
AN 2003-092900 [08] WPIDS
CR 1998-145263 [13]; 2001-061976 [07]; 2001-451868 [48]; 2001-656926 [75]; 2002-258024 [30]; 2002-608256 [65]
DNC C2003-023163
TI Detecting for the presence of target analyte, comprises providing a particle complex probe having **particles** with bound **oligonucleotides**, DNA barcodes and oligonucleotides having specific binding complement to a target analyte.
DC B04 D16
IN MIRKIN, C A; NAM, J; PARK, S
PA (MIRK-I) MIRKIN C A; (NAMJ-I) NAM J; (PARK-I) PARK S; (NANO-N) NANOSPHERE INC
CYC 100
PI WO 2002079490 A2 20021010 (200308)* EN 66p
RW: AT BE CH CY DE DK EA ES FI FR GB GH GM GR IE IT KE LS LU MC MW MZ NL OA PT SD SE SL SZ TR TZ UG ZM ZW
W: AE AG AL AM AT AU AZ BA BB BG BR BY BZ CA CH CN CO CR CU CZ DE DK DM DZ EC EE ES FI GB GD GE GH GM HR HU ID IL IN IS JP KE KG KP KR KZ LC LK LR LS LT LU LV MA MD MG MK MN MW MX MZ NO NZ OM PH PL PT RO RU SD SE SG SI SK SL TJ TM TN TR TT TZ UA UG US UZ VN YU ZA ZM ZW
US 2002192687 A1 20021219 (200308)
ADT WO 2002079490 A2 WO 2002-US11158 20020327; US 2002192687 A1 Provisional US 2000-192699P 20000328, CIP of US 2001-820279 20010328, Provisional US 2001-350560P 20011113, US 2002-108211 20020327
PRAI US 2001-350560P 20011113; US 2001-820279 20010328; WO 2001-US10071 20010328
AN 2003-092900 [08] WPIDS
CR 1998-145263 [13]; 2001-061976 [07]; 2001-451868 [48]; 2001-656926 [75];

2002-258024 [30]; 2002-608256 [65]

AB WO 200279490 A UPAB: 20030204

NOVELTY - Detecting for the presence of a target analyte in a sample comprises providing a particle complex probe comprising a particle with oligonucleotides bound to it, a DNA barcode and an oligonucleotide having a specific binding complement to a target analyte bound to it.

DETAILED DESCRIPTION - Detecting for the presence of a target analyte in a sample comprises:

(a) providing a particle complex probe comprising a particle with oligonucleotides bound to it, a DNA barcode and an oligonucleotide having a specific binding complement to a target analyte bound to it, where:

(i) the DNA barcode has a sequence having at least two portions;

(ii) at least some of the oligonucleotides attached to the particle have a sequence that is **complementary** to a first portion of the DNA barcode;

(iii) the oligonucleotides having bound to it a specific binding complement have a sequence that is **complementary** to the second portion of the DNA barcode; and

(iv) the DNA barcode is hybridized at least to some of the oligonucleotides attached to the particle and to the oligonucleotides having bound to it the specific binding complement;

(b) contacting the sample with a particle complex probe under conditions effective to allow specific binding interactions between the analyte and the particle complex probe and to form an aggregated complex in the presence of the analyte; and

(c) observing whether the aggregate formation occurred.

INDEPENDENT CLAIMS are also included for the following:

(1) Kits for any of the detection methods cited, comprising at least one container with the particle complex probe, and optical substrate for observing a detectable change;

(2) A system for detecting one or more target analytes in a sample the one or more particle complex probes as cited above;

(3) The particle complex probe;

(4) An oligonucleotide sequence having bound to a specific target complement to a target analyte;

(5) A DNA barcode comprising a oligonucleotide sequence that serves as an identifier for the presence of a specific target analyte; and

(6) Two or more DNA barcodes comprising an oligonucleotide sequence, each DNA barcode having a different oligonucleotide sequence and serving as an identifier for the presence of a specific target analyte.

USE - The method, DNA barcode, particle complex probe, oligonucleotides and kits are useful for detecting one or more target analytes (claimed). The oligonucleotides are useful as biochemical barcodes for detecting multiple protein structures in one solution. They are also useful in research and clinical settings.

Dwg.0/4

L7 ANSWER 14 OF 29 USPATFULL

AN 2002:337329 USPATFULL

TI Bio-barcodes based on **oligonucleotide**-modified **nanoparticles**

IN Mirkin, Chad A., Willmette, IL, UNITED STATES
Park, So-Jung, Evanston, IL, UNITED STATES
Nam, Jwa-Min, Evanston, IL, UNITED STATES

PI US 2002192687 A1 20021219

AI US 2002-108211 A1 20020327 (10)

RLI Continuation-in-part of Ser. No. US 2001-820279, filed on 28 Mar 2001, PENDING

PRAI WO 2001-US10071 20010328
US 2000-192699P 20000328 (60)
US 2001-350560P 20011113 (60)

DT Utility

09567863

FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 41
ECL Exemplary Claim: 1
DRWN 4 Drawing Page(s)
LN.CNT 2185
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to a screening methods, compositions, and kits for detecting for the presence or absence of one or more target analytes, e.g. proteins such as antibodies, in a sample. In particular, the present invention relates to a method that utilizes reporter oligonucleotides as biochemical barcodes for detecting multiple protein structures or other target analytes in one solution.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 15 OF 29 USPATFULL
AN 2002:322449 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182613 A1 20021205
AI US 2001-976971 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 172
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6563
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 16 OF 29 USPATFULL
AN 2002:322447 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182611 A1 20021205
AI US 2001-966491 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 190
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6646
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 17 OF 29 USPATFULL
AN 2002:294562 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Chicago, IL, UNITED STATES
Taton, Thomas A., Chicago, IL, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002164605 A1 20021107
AI US 2001-966312 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,

GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8066
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 18 OF 29 USPATFULL
AN 2002:287518 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002160381 A1 20021031
AI US 2001-975498 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, PENDING Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 5695

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 19 OF 29 USPATFULL

AN 2002:280028 USPATFULL

TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor

IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES

PA Nanosphere, Inc. (U.S. corporation)

PI US 2002155462 A1 20021024

AI US 2001-976577 A1 20011012 (9)

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)

DT Utility

FS APPLICATION

LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606

CLMN Number of Claims: 431

ECL Exemplary Claim: 1

DRWN 46 Drawing Page(s)

LN.CNT 8047

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and

methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 20 OF 29 USPATFULL
AN 2002:280027 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155461 A1 20021024
AI US 2001-976378 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8052
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 21 OF 29 USPATFULL
AN 2002:280025 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

09567863

Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155459 A1 20021024
AI US 2001-975062 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8059
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 22 OF 29 USPATFULL
AN 2002:280024 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155458 A1 20021024
AI US 2001-967409 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN

09567863

PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8059
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 23 OF 29 USPATFULL
AN 2002:265869 USPATFULL
TI Methods and reagents for multiplexed analyte capture, surface array self-assembly, and analysis of complex biological samples
IN Natan, Michael J., Los Altos, CA, UNITED STATES
Schulman, Howard, Palo Alto, CA, UNITED STATES
PA SURROMED, INC., Mountain View, CA (U.S. corporation)
PI US 2002146745 A1 20021010
AI US 2002-115863 A1 20020403 (10)
PRAI US 2001-281228P 20010403 (60)
US 2001-281041P 20010403 (60)
DT Utility
FS APPLICATION
LREP SWANSON & BRATSCHUN L.L.C., 1745 SHEA CENTER DRIVE, SUITE 330, HIGHLANDS RANCH, CO, 80129
CLMN Number of Claims: 20
ECL Exemplary Claim: 1
DRWN 5 Drawing Page(s)
LN.CNT 1204
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Bifunctional capture probes used for multiplexed assays consist of particles bearing analyte-binding moieties and pairing oligonucleotides, which hybridize to an array of surface-bound capture oligonucleotides. Capture probes are combined with a sample containing analytes of interest, extracted from the sample, and then exposed to the oligonucleotide array. Based on their pairing oligonucleotide sequences, the capture probes self-assemble at particular array locations. Bound analytes are then detected using a method, such as mass spectrometry, that can be directed toward particular array locations. Because any number and combination of capture probes can be employed, the method is flexible and able to detect analytes at very low concentrations.

Additionally, the method provides the ease of detection associated with position-addressable arrays.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 24 OF 29 USPATFULL
AN 2002:265844 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002146720 A1 20021010
AI US 2001-961949 A1 20010920 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8063
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 25 OF 29 USPATFULL
AN 2002:251128 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES

09567863

Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137072 A1 20020926
AI US 2001-976617 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8061
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 26 OF 29 USPATFULL
AN 2002:251127 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137071 A1 20020926
AI US 2001-974007 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility

09567863

FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8063
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 27 OF 29 USPATFULL
AN 2002:251126 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137070 A1 20020926
AI US 2001-973638 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8060
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences

complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 28 OF 29 USPATFULL
AN 2002:251114 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Chicago, IL, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137058 A1 20020926
AI US 2001-923625 A1 20010807 (9)
RLI Continuation of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 105
ECL Exemplary Claim: 1
DRWN 26 Drawing Page(s)
LN.CNT 3903
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L7 ANSWER 29 OF 29 USPATFULL
AN 2002:235385 USPATFULL
TI **Nanoparticles** having **oligonucleotides** attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES

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Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002127574 A1 20020912
AI US 2001-973788 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8060
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of **particles** having **oligonucleotides** attached thereto. In one embodiment of the method, the **oligonucleotides** are attached to **nanoparticles** and have sequences **complementary** to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the **hybridization** of the **oligonucleotides** on the **nanoparticles** to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a **selected** nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

=> d his

(FILE 'HOME' ENTERED AT 06:49:27 ON 24 FEB 2003)

FILE 'BIOSIS, MEDLINE, CAPLUS, WPIDS, USPATFULL' ENTERED AT 06:50:37 ON 24 FEB 2003
L1 230 S NANOPARTICLES (3A) OLIGONUCLEOTIDE?
L2 123 S L1 AND HYBRIDIZATION
L3 103 S L2 AND SELECT?
L4 89 DUP REM L3 (14 DUPLICATES REMOVED)
L5 85 S L4 AND COMPLEMENTA?
L6 0 S L5 AND NANOPARTICLES (2A) OILGONULCEOTIDES
L7 29 S L5 AND PARTICLES (2A) OLIGONUCLEOTIDES

=> s l5 not l7
L8 56 L5 NOT L7

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=> s l8 and gold
L9 53 L8 AND GOLD

=> d l8 bib abs 1-56

L8 ANSWER 1 OF 56 USPATFULL
AN 2003:44352 USPATFULL
TI Pituitary tumor transforming gene (PTTG) carboxy-terminal peptides and methods of use thereof to inhibit neoplastic cellular proliferation and/or transformation
IN Horwitz, Gregory A., Calabasas, CA, UNITED STATES
Zhang, Xun, Malden, MA, UNITED STATES
Melmed, Shlomo, Los Angeles, CA, UNITED STATES
PI US 2003031662 A1 20030213
AI US 2002-136082 A1 20020429 (10)
RLI Division of Ser. No. US 2000-569956, filed on 12 May 2000, PENDING Continuation-in-part of Ser. No. US 1999-894251, filed on 23 Jul 1999, PENDING A 371 of International Ser. No. WO 1997-US21463, filed on 21 Nov 1997, UNKNOWN
PRAI US 1996-31338P 19961121 (60)
US 1997-65825P 19971114 (60)
DT Utility
FS APPLICATION
LREP SIDLEY AUSTIN BROWN & WOOD LLP, 555 West Fifth Street, Los Angeles, CA, 90013-1010
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 5 Drawing Page(s)
LN.CNT 3074
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Disclosed is a method of inhibiting neoplastic cellular proliferation and/or transformation of mammalian cells, including cells of human origin, in vitro or in vivo. The inventive method involves the use of a composition containing a pituitary tumor transforming gene carboxy-terminal peptide (PTTG-C), which can be comprised in a chimeric protein, which has the ability to regulate endogenous pituitary tumor transforming gene (PTTG) expression and/or function in a dominant negative manner. Kits comprising the inventive compositions are also disclosed for the treatment of neoplastic cellular proliferation in vitro or in vivo. Isolated PTTG-C peptides and PTTG-C-containing chimeric proteins are described.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 2 OF 56 USPATFULL
AN 2003:37187 USPATFULL
TI Anionic liposomes for delivery of bioactive agents
IN Lakkaraju, Aparna, Minneapolis, MN, UNITED STATES
Dubinsky, Janet M., St. Paul, MN, UNITED STATES
Low, Walter, Shorewood, MN, UNITED STATES
Rahman, Yueh-Erh, LaJolla, CA, UNITED STATES
PI US 2003026831 A1 20030206
AI US 2002-131786 A1 20020422 (10)
PRAI US 2001-285337P 20010420 (60)
DT Utility
FS APPLICATION
LREP SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A., P.O. BOX 2938, MINNEAPOLIS, MN, 55402
CLMN Number of Claims: 66
ECL Exemplary Claim: 1
DRWN 20 Drawing Page(s)
LN.CNT 3617

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AB The present invention relates to the delivery of bioactive agents into cells. More specifically, the present invention relates to methods of using anionic liposomes to deliver bioactive agents, including oligonucleotides, plasmid DNA, RNA, proteins, and drugs, to non-dividing cells. The present invention also relates to compositions that include the anionic liposomes.

L8 ANSWER 3 OF 56 USPATFULL
AN 2003:24158 USPATFULL
TI Methods of using pituitary tumor transforming gene (PTTG) carboxy-terminal peptides to inhibit neoplastic cellular proliferation and/or transformation of breast and ovarian cells
IN Heaney, Anthony P., Los Angeles, CA, UNITED STATES
Horwitz, Gregory A., Calabasas, CA, UNITED STATES
Zhang, Xun, Malden, MA, UNITED STATES
Melmed, Shlomo, Los Angeles, CA, UNITED STATES
PI US 2003018001 A1 20030123
AI US 2000-730469 A1 20001204 (9)
RLI Continuation-in-part of Ser. No. US 2000-687911, filed on 13 Oct 2000, PENDING Continuation-in-part of Ser. No. US 2000-569956, filed on 12 May 2000, PENDING Continuation-in-part of Ser. No. US 1999-894251, filed on 23 Jul 1999, PENDING A 371 of International Ser. No. WO 1997-US21463, filed on 21 Nov 1997, UNKNOWN
PRAI US 1996-31338P 19961121 (60)
DT Utility
FS APPLICATION
LREP Edward G. Poplawski, Esq., SIDLEY AUSTIN BROWN & WOOD, 555 West Fifth Street, Los Angeles, CA, 90013-1010
CLMN Number of Claims: 49
ECL Exemplary Claim: 1
DRWN 17 Drawing Page(s)
LN.CNT 3868
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Disclosed is a method of inhibiting neoplastic cellular proliferation and/or transformation of mammalian breast or ovarian cells, including cells of human origin, in vitro or in vivo. The inventive method involves the use of a pituitary tumor transforming gene carboxy-terminal peptide (PTTG-C), which has the ability to regulate endogenous pituitary tumor transforming gene (PTTG) expression and/or function in a dominant negative manner. In some embodiments, the invention is directed to gene-based treatments that deliver PTTG-C-related polynucleotides to mammalian cells, whether in vitro or in vivo, to inhibit the endogenous expression of PTTG. Other embodiments are directed to peptide-based treatments that deliver PTTG-C peptide molecules to the cells, which inhibit endogenous PTTG expression and/or PTTG function. The method can also enhance the effectiveness of cytotoxic chemotherapeutic agents conventionally used to treat breast or ovarian cancers, thus allowing lower effective doses of the agents to be administered.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 4 OF 56 USPATFULL
AN 2003:6827 USPATFULL
TI Antisense modulation of syntaxin 4 interacting protein expression
IN Freier, Susan M., San Diego, CA, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6503756 B1 20030107
AI US 2000-668313 20000922 (9)
DT Utility

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FS GRANTED
EXNAM Primary Examiner: McGarry, Sean; Assistant Examiner: Zara, Jane
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 10
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 4089
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Syntaxin 4 interacting protein. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Syntaxin 4 interacting protein. Methods of using these compounds for modulation of Syntaxin 4 interacting protein expression and for treatment of diseases associated with expression of Syntaxin 4 interacting protein are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 5 OF 56 USPATFULL
AN 2003:6825 USPATFULL
TI Antisense modulation of BH3 interacting domain death agonist expression
IN Zhang, Hong, Carlsbad, CA, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6503754 B1 20030107
AI US 2000-657346 20000907 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 4756
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of BH3 Interacting domain Death agonist. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding BH3 Interacting domain Death agonist. Methods of using these compounds for modulation of BH3 Interacting domain Death agonist expression and for treatment of diseases associated with expression of BH3 Interacting domain Death agonist are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 6 OF 56 USPATFULL
AN 2003:3422 USPATFULL
TI Bio-polymer array system with detection sensitivity enhanced by radiation treatment
IN Golovlev, Valeri, Oak Ridge, TN, UNITED STATES
PI US 2003003457 A1 20030102
AI US 2001-891421 A1 20010626 (9)
DT Utility
FS APPLICATION
LREP Valeri V. Golovlev, 107 Canterbury Rd., Oak Ridge, TN, 37830
CLMN Number of Claims: 18
ECL Exemplary Claim: 1
DRWN 12 Drawing Page(s)
LN.CNT 915

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CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Devices and techniques are disclosed for sequencing, fingerprinting, or mapping bio-polymer molecules in micro-array format by tagging molecules with radiation absorbing particles and exposing tagged molecules to electromagnetic radiation such as microwave radiation. The use of radiation absorbing material for tagging enhances detection sensitivity by dissipating energy of the radiation in spots on surface where tagged molecules are located. Proposed system can be particularly beneficial when used as a reader system for DNA and protein microarrays in genomic and proteomic applications, for reading affinity assays, and for detection of a trace amount of chemical or biological species of interest on a surface.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 7 OF 56 USPATFULL
AN 2002:340254 USPATFULL
TI Antisense modulation of MEKK3 expression
IN Wyatt, Jacqueline, Encinitas, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6498035 B1 20021224
AI US 2000-658688 20000908 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3192
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of MEKK3. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding MEKK3. Methods of using these compounds for modulation of MEKK3 expression and for treatment of diseases associated with expression of MEKK3 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 8 OF 56 USPATFULL
AN 2002:325879 USPATFULL
TI Antisense inhibition of cyclin D2 expression
IN Cowsert, Lex M., San Mateo, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6492173 B1 20021210
AI US 2001-920760 20010801 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Wang, Andrew; Assistant Examiner: Lacourciere, Karen
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3125
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Cyclin D2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Cyclin D2. Methods of using these compounds

for modulation of Cyclin D2 expression and for treatment of diseases associated with expression of Cyclin D2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 9 OF 56 USPATFULL
AN 2002:325878 USPATFULL
TI Antisense modulation of GU protein expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Busch, Harris, Houston, TX, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6492172 B1 20021210
AI US 2001-844521 20010427 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3196
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of GU Protein. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding GU Protein. Methods of using these compounds for modulation of GU Protein expression and for treatment of diseases associated with expression of GU Protein are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 10 OF 56 USPATFULL
AN 2002:325877 USPATFULL
TI Antisense modulation of caspase 9 expression
IN Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6492170 B1 20021210
AI US 2000-659845 20000911 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Wang, Andrew
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3934
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of caspase 9. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding caspase 9. Methods of using these compounds for modulation of caspase 9 expression and for treatment of diseases associated with expression of caspase 9 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 11 OF 56 USPATFULL
AN 2002:317413 USPATFULL
TI Antisense compositions targeted to .beta.1-adrenoceptor-specific mRNA

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and methods of use
IN Phillips, M. Ian, Gainesville, FL, United States
Zhang, Yuan, Gainesville, FL, United States
PA University of Florida, Gainesville, FL, United States (U.S. corporation)
PI US 6489307 B1 20021203
AI US 2000-614034 20000711 (9)
RLI Continuation-in-part of Ser. No. WO 1999-US21007, filed on 14 Sep 1999
Continuation-in-part of Ser. No. US 1998-152717, filed on 14 Sep 1998, now patented, Pat. No. US 6087343, issued on 11 Jul 2000
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean
LREP Williams, Morgan & Amerson, P.C.
CLMN Number of Claims: 65
ECL Exemplary Claim: 1
DRWN 26 Drawing Figure(s); 13 Drawing Page(s)
LN.CNT 5947
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Disclosed are antisense oligonucleotide, polynucleotide, and peptide nucleic acid compounds that specifically bind to mammalian mRNA encoding a .beta..sub.1-adrenoceptor polypeptide and that are useful in the control and/or treatment of cardiac dysfunction, hypertension, hypertrophy, myocardial ischemia, and other cardiovascular diseases in an affected mammal, and preferably, in a human subject. The antisense compounds disclosed herein, and pharmaceutical formulations thereof, provide sustained control of .beta..sub.1-adrenoceptor expression over prolonged periods, and achieve therapeutic effects from as little as a single dose. Administration of these antisense compositions to approved animal models resulted in a decrease in blood pressure, but no significant change in heart rate. Use of such antisense compositions in the reduction of .beta..sub.1-adrenoceptor polypeptides in a host cell expressing .beta..sub.1-adrenoceptor-specific mRNA, and in the preparation of medicaments for treating human and animal diseases, and in particular, hypertension and other cardiac dysfunction is also disclosed.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 12 OF 56 USPATFULL
AN 2002:314666 USPATFULL
TI Non-alloying core shell nanoparticles
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Cao, Yun-Wei, Evanston, IL, UNITED STATES
Jin, Rongchao, Evanston, IL, UNITED STATES
PI US 2002177143 A1 20021128
AI US 2001-34451 A1 20011228 (10)
PRAI US 2001-293861P 20010525 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 35
ECL Exemplary Claim: 1
DRWN 7 Drawing Page(s)
LN.CNT 1075
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates composite core/shell nanoparticles and a two-step method for their preparation. The present invention further relates to biomolecule-core/shell nanoparticle conjugates and methods for their preparation. The invention also relates to methods of detection of biomolecules comprising the biomolecule or specific binding substance-core/shell nanoparticle conjugates.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 13 OF 56 USPATFULL
AN 2002:310816 USPATFULL
TI Antisense modulation of PTPN2 expression
IN Popoff, Ian, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6485974 B1 20021126
AI US 2001-861159 20010518 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean; Assistant Examiner: Epps, Janet
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3187
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of PTPN2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding PTPN2. Methods of using these compounds for modulation of PTPN2 expression and for treatment of diseases associated with expression of PTPN2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 14 OF 56 USPATFULL
AN 2002:303885 USPATFULL
TI Antisense modulation of dual specific phosphatase 8 expression
IN Cowsert, Lex M., San Mateo, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6482644 B1 20021119
AI US 2001-920668 20010801 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, Mary
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3108
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Dual specific phosphatase 8. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Dual specific phosphatase 8. Methods of using these compounds for modulation of Dual specific phosphatase 8 expression and for treatment of diseases associated with expression of Dual specific phosphatase 8 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 15 OF 56 USPATFULL
AN 2002:290779 USPATFULL
TI Antisense modulation of SR-CYP expression
IN Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)

09567863

PI US 6475797 B1 20021105
AI US 2000-706197 20001103 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean; Assistant Examiner: Zara, Jane
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3159
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of SR-cyp. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding SR-cyp. Methods of using these compounds for modulation of SR-cyp expression and for treatment of diseases associated with expression of SR-cyp are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 16 OF 56 USPATFULL
AN 2002:280811 USPATFULL
TI Oligonucleotides containing an antisense sequence stabilized by a secondary structure, pharmaceutical compositions containing them and method of blocking gene expression using them
IN Malvy, Calude, Boussy-Saint-Antoine, FRANCE
Helin, Valerie, Paris, FRANCE
Maksimenko, Andrei, Paris, FRANCE
Gottikh, Marina, Moscou, RUSSIAN FEDERATION
PI US 2002156261 A1 20021024
AI US 2001-949134 A1 20010907 (9)
RLI Continuation of Ser. No. WO 2000-FR586, filed on 9 Mar 2000, UNKNOWN
PRAI FR 1999-2921 19990309
DT Utility
FS APPLICATION
LREP SCHNADER HARRISON SEGAL & LEWIS, LLP, 1600 MARKET STREET, SUITE 3600, PHILADELPHIA, PA, 19103
CLMN Number of Claims: 25
ECL Exemplary Claim: 1
DRWN 14 Drawing Page(s)
LN.CNT 1304
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Oligonucleotides capable of modifying or inhibiting in vivo or in vitro expression of a target gene wherein the oligonucleotide has an antisense sequence, at least one secondary structure, and optionally a supplementary nucleotide sequence located at one and/or both ends of the antisense sequence and wherein the secondary structure disintegrates upon attachment of the oligonucleotide to a target nucleic acid; a pharmaceutical composition containing such an oligonucleotide as an active ingredient; and a method of treatment using such an oligonucleotide.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 17 OF 56 USPATFULL
AN 2002:275942 USPATFULL
TI Antisense modulation of bifunctional apoptosis regulator expression
IN Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6468796 B1 20021022
AI US 2001-844525 20010427 (9)

09567863

DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3227
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of bifunctional apoptosis regulator. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding bifunctional apoptosis regulator. Methods of using these compounds for modulation of bifunctional apoptosis regulator expression and for treatment of diseases associated with expression of bifunctional apoptosis regulator are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 18 OF 56 USPATFULL
AN 2002:275941 USPATFULL
TI Antisense modulation of Apaf-1 expression
IN Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6468795 B1 20021022
AI US 2000-690364 20001016 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 4074
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Apaf-1. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Apaf-1. Methods of using these compounds for modulation of Apaf-1 expression and for treatment of diseases associated with expression of Apaf-1 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 19 OF 56 USPATFULL
AN 2002:268607 USPATFULL
TI Antisense modulation of protein phosphatase 2 catalytic subunit alpha expression
IN Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6465250 B1 20021015
AI US 2001-780049 20010209 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)

09567863

LN.CNT 4311
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Protein Phosphatase 2 catalytic subunit alpha. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Protein Phosphatase 2 catalytic subunit alpha. Methods of using these compounds for modulation of Protein Phosphatase 2 catalytic subunit alpha expression and for treatment of diseases associated with expression of Protein Phosphatase 2 catalytic subunit alpha are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 20 OF 56 USPATFULL
AN 2002:266284 USPATFULL
TI Antisense modulation of casein kinase 2-alpha expression
IN McKay, Robert, San Diego, CA, UNITED STATES
Freier, Susan M., San Diego, CA, UNITED STATES
Wyatt, Jacqueline, Encinitas, CA, UNITED STATES
PA Isis Pharmaceuticals Inc. (U.S. corporation)
PI US 2002147163 A1 20021010
AI US 2001-780172 A1 20010208 (9)
DT Utility
FS APPLICATION
LREP Jane Massey Licata, Licata & Tyrrell, P.C., 66 East Main Street, Marlton, NJ, 08053
CLMN Number of Claims: 20
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 4862
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Casein kinase 2-alpha. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Casein kinase 2-alpha. Methods of using these compounds for modulation of Casein kinase 2-alpha expression and for treatment of diseases associated with expression of Casein kinase 2-alpha are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 21 OF 56 USPATFULL
AN 2002:266283 USPATFULL
TI Methods of modulating angiogenesis by regulating the expression of pituitary tumor transforming gene (PTTG)
IN Heaney, Anthony P., Los Angeles, CA, UNITED STATES
Ishikawa, Hiroki, Nagasaki, JAPAN
Yu, Run, Los Angeles, CA, UNITED STATES
Horwitz, Gregory A., Los Angeles, CA, UNITED STATES
Zhang, Xun, Malden, MA, UNITED STATES
Melmed, Shlomo, Los Angeles, CA, UNITED STATES
PI US 2002147162 A1 20021010
AI US 2001-777422 A1 20010205 (9)
RLI Continuation-in-part of Ser. No. US 2000-730469, filed on 4 Dec 2000, PENDING Continuation-in-part of Ser. No. US 2000-687911, filed on 13 Oct 2000, PENDING Continuation-in-part of Ser. No. US 2000-569956, filed on 12 May 2000, PENDING Continuation-in-part of Ser. No. US 1999-894251, filed on 23 Jul 1999, PENDING A 371 of International Ser. No. WO 1997-US21463, filed on 21 Nov 1997, UNKNOWN
PRAI US 1996-31338P 19961121 (60)
DT Utility
FS APPLICATION

09567863

LREP Edward G. Poplawski, Esq., SIDLEY AUSTIN BROWN & WOOD, 555 West Fifth Street, Los Angeles, CA, 90013-1010
CLMN Number of Claims: 45
ECL Exemplary Claim: 1
DRWN 28 Drawing Page(s)
LN.CNT 4221
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Disclosed is a method of modulating angiogenesis in a tissue comprising mammalian cells, including cells of human origin, in vitro or in vivo. Also disclosed are a method of enhancing wound healing and/or tissue regeneration and a method of limiting scar formation.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 22 OF 56 USPATFULL
AN 2002:246584 USPATFULL
TI Antisense modulation of serum amyloid A4 expression
IN Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6455308 B1 20020924
AI US 2001-920672 20010801 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M.
LREP Licata & Tyrell P. C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3229
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of serum amyloid A4. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding serum amyloid A4. Methods of using these compounds for modulation of serum amyloid A4 expression and for treatment of diseases associated with expression of serum amyloid A4 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 23 OF 56 USPATFULL
AN 2002:246583 USPATFULL
TI Antisense modulation of casein kinase 2-alpha prime expression
IN McKay, Robert, San Diego, CA, United States
Freier, Susan M., San Diego, CA, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6455307 B1 20020924
AI US 2001-780173 20010208 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3540
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Casein kinase 2-alpha prime. The

compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Casein kinase 2-alpha prime. Methods of using these compounds for modulation of Casein kinase 2-alpha prime expression and for treatment of diseases associated with expression of Casein kinase 2-alpha prime are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 24 OF 56 USPATFULL
AN 2002:246537 USPATFULL
TI Endonuclease compositions and methods of use
IN Aguilera, Renato J., Culver City, CA, United States
Lyon, Christopher J., Los Angeles, CA, United States
PA The Regents of the University of California, Oakland, CA, United States (U.S. corporation)
PI US 6455250 B1 20020924
AI US 1998-210422 19981211 (9)
PRAI US 1997-69205P 19971211 (60)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Priebe, Scott D.; Assistant Examiner: Chen, Shin-Lin
LREP Mandel & Adriano
CLMN Number of Claims: 16
ECL Exemplary Claim: 1
DRWN 10 Drawing Figure(s); 7 Drawing Page(s)
LN.CNT 6414
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Disclosed are methods for modulating apoptosis and altering programmed cell death events using novel Endo-SR gene compositions and the polypeptides encoded thereby. Also disclosed are methods for repairing DNA, modulating genetic recombination in a cell, and altering DNA rearrangement in a host cell. Also disclosed are methods for the design and isolation of peptidomimetics and other inhibitors of Endo-SR useful in the treatment of leukemias, lymphomas, and other cancers.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 25 OF 56 USPATFULL
AN 2002:233054 USPATFULL
TI Silver stain removal by chemical etching and sonication
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Park, So-Jung, Evanston, IL, UNITED STATES
Jin, Rongchao, Evanston, IL, UNITED STATES
PI US 2002125214 A1 20020912
AI US 2001-998936 A1 20011130 (9)
PRAI US 2000-251715P 20001206 (60)
DT Utility
FS APPLICATION
LREP McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 1 Drawing Page(s)
LN.CNT 266
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB This invention relates to methods for regenerating spent DNA detection chips for further use. Specifically, this invention relates to a method for removal of silver from used DNA detection chips that employ gold nanoparticle-oligonucleotide conjugate probes and that use silver staining for signal amplification.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 26 OF 56 USPATFULL
AN 2002:230847 USPATFULL
TI Antisense modulation of interleukin 12 p40 subunit expression
IN Baker, Brenda F., Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6448081 B1 20020910
AI US 2001-851062 20010507 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3257
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Interleukin 12 p40 subunit. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Interleukin 12 p40 subunit. Methods of using these compounds for modulation of Interleukin 12 p40 subunit expression and for treatment of diseases associated with expression of Interleukin 12 p40 subunit are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 27 OF 56 USPATFULL
AN 2002:230846 USPATFULL
TI Antisense modulation of WRN expression
IN Ward, Donna T., Murrieta, CA, United States
Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6448080 B1 20020910
AI US 2001-791211 20010223 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 27
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 6947
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of WRN. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding WRN. Methods of using these compounds for modulation of WRN expression and for treatment of diseases associated with expression of WRN are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 28 OF 56 USPATFULL
AN 2002:227722 USPATFULL
TI Nanolithography methods and products therefor and produced thereby
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Hong, Seunghun, Chicago, IL, UNITED STATES
Dravid, Vinayak P., Glenview, IL, UNITED STATES

09567863

PI US 2002122873 A1 20020905
AI US 2002-59593 A1 20020128 (10)
RLI Continuation-in-part of Ser. No. US 2000-477997, filed on 5 Jan 2000, PENDING
PRAI US 2001-264550P 20010126 (60)
DT Utility
FS APPLICATION
LREP SHERIDAN ROSS PC, 1560 BROADWAY, SUITE 1200, DENVER, CO, 80202
CLMN Number of Claims: 74
ECL Exemplary Claim: 1
DRWN 3 Drawing Page(s)
LN.CNT 1181
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB In one aspect, a method of nanolithography is provided using a driving force to control the movement of a deposition compound from a scanning probe microscope tip to a substrate. Another aspect of the invention provides a tip for use in nanolithography having an internal cavity and an aperture restricting movement of a deposition compound from the tip to the substrate. The rate and extent of movement of the deposition compound through the aperture is controlled by a driving force.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 29 OF 56 USPATFULL
AN 2002:224457 USPATFULL
TI Antisense modulation of helicase-moi expression
IN Ward, Donna T., Murrieta, CA, United States
Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6444466 B1 20020903
AI US 2001-853768 20010510 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, Mary M.
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3807
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of helicase-moi. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding helicase-moi. Methods of using these compounds for modulation of helicase-moi expression and for treatment of diseases associated with expression of helicase-moi are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 30 OF 56 USPATFULL
AN 2002:224455 USPATFULL
TI Antisense modulation of E2F transcription factor 2 expression
IN Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6444464 B1 20020903
AI US 2000-658679 20000908 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean

09567863

LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3142
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of E2F transcription factor 2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding E2F transcription factor 2. Methods of using these compounds for modulation of E2F transcription factor 2 expression and for treatment of diseases associated with expression of E2F transcription factor 2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 31 OF 56 USPATFULL
AN 2002:217087 USPATFULL
TI Antisense modulation of glioma-associated oncogene-2 expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6440739 B1 20020827
AI US 2001-907843 20010717 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, Mary
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3336
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of glioma-associated oncogene-2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding glioma-associated oncogene-2. Methods of using these compounds for modulation of glioma-associated oncogene-2 expression and for treatment of diseases associated with expression of glioma-associated oncogene-2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 32 OF 56 USPATFULL
AN 2002:217086 USPATFULL
TI Antisense modulation of casein kinase 2-beta expression
IN Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6440738 B1 20020827
AI US 2001-780175 20010208 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 4013
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for

modulating the expression of Casein kinase 2-beta. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Casein kinase 2-beta. Methods of using these compounds for modulation of Casein kinase 2-beta expression and for treatment of diseases associated with expression of Casein kinase 2-beta are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 33 OF 56 USPATFULL
AN 2002:217085 USPATFULL
TI Antisense modulation of cellular apoptosis susceptibility gene expression
IN Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6440737 B1 20020827
AI US 2000-705299 20001101 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, Mary
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3835
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of cellular apoptosis susceptibility gene. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding cellular apoptosis susceptibility gene. Methods of using these compounds for modulation of cellular apoptosis susceptibility gene expression and for treatment of diseases associated with expression of cellular apoptosis susceptibility gene are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 34 OF 56 USPATFULL
AN 2002:209362 USPATFULL
TI Antisense inhibitor of RECQL4 expression
IN Ward, Donna T., Murrieta, CA, United States
Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6436706 B1 20020820
US 2002142975 A1 20021003
AI US 2001-792594 20010223 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Wang, Andrew; Assistant Examiner: Lacourciere, Karen A.
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 27
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3444
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of RECQL4. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding RECQL4. Methods of using these compounds for modulation

of RECQL4 expression and for treatment of diseases associated with expression of RECQL4 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 35 OF 56 USPATFULL
AN 2002:192075 USPATFULL
TI Antisense modulation of damage-specific DNA binding protein 1, p127 expression
IN Popoff, Ian, Encinitas, CA, UNITED STATES
Wyatt, Jacqueline, Encinitas, CA, UNITED STATES
PA Isis Pharmaceuticals Inc. (U.S. corporation)
PI US 2002103146 A1 20020801
AI US 2000-731457 A1 20001206 (9)
DT Utility
FS APPLICATION
LREP Kathleen A. Tyrrell, Licata & Tyrrell P.C., 66 East Main Street, Marlton, NJ, 08053
CLMN Number of Claims: 20
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 3395
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Damage-specific DNA binding protein 1, p127. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Damage-specific DNA binding protein 1, p127. Methods of using these compounds for modulation of Damage-specific DNA binding protein 1, p127 expression and for treatment of diseases associated with expression of Damage-specific DNA binding protein 1, p127 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 36 OF 56 USPATFULL
AN 2002:188252 USPATFULL
TI Antisense modulation of RIP2 expression
IN Ward, Donna T., Murrieta, CA, United States
Cowsert, Lex M., Carlsbad, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6426221 B1 20020730
AI US 2001-920663 20010801 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3059
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of RIP2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding RIP2. Methods of using these compounds for modulation of RIP2 expression and for treatment of diseases associated with expression of RIP2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 37 OF 56 USPATFULL

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AN 2002:188221 USPATFULL
TI Antisense modulation of phosphorylase kinase alpha 1 expression
IN Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6426188 B1 20020730
AI US 2000-657452 20000907 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Wang, Andrew
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 4138
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Phosphorylase kinase alpha 1. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Phosphorylase kinase alpha 1. Methods of using these compounds for modulation of Phosphorylase kinase alpha 1 expression and for treatment of diseases associated with expression of Phosphorylase kinase alpha 1 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 38 OF 56 USPATFULL
AN 2002:157623 USPATFULL
TI Antisense modulation of BH3 interacting domain death agonist expression
IN Zhang, Hong, Carlsbad, CA, UNITED STATES
Wyatt, Jacqueline, Encinitas, CA, UNITED STATES
PI US 2002082228 A1 20020627
AI US 2001-800631 A1 20010307 (9)
RLI Continuation-in-part of Ser. No. US 2000-657346, filed on 7 Sep 2000, PENDING
DT Utility
FS APPLICATION
LREP Kathleen A. Tyrrell, Licata & Tyrrell P.C., 66 E. Main Street, Marlton, NJ, 08053
CLMN Number of Claims: 23
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 4971
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of BH3 Interacting domain Death agonist. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding BH3 Interacting domain Death agonist. Methods of using these compounds for modulation of BH3 Interacting domain Death agonist expression and for treatment of diseases associated with expression of BH3 Interacting domain Death agonist are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 39 OF 56 USPATFULL
AN 2002:152469 USPATFULL
TI Antisense modulation of phospholipase A2, group VI (Ca2+-independent) expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
Watt, Andrew T., Vista, CA, United States

09567863

PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6410325 B1 20020625
AI US 2001-851896 20010509 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2760
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Phospholipase A2, group VI (Ca2+-independent). The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Phospholipase A2, group VI (Ca2+-independent). Methods of using these compounds for modulation of Phospholipase A2, group VI (Ca2+-independent) expression and for treatment of diseases associated with expression of Phospholipase A2, group VI (Ca2+-independent) are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 40 OF 56 USPATFULL
AN 2002:152468 USPATFULL
TI Antisense modulation of tumor necrosis factor receptor 2 expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6410324 B1 20020625
AI US 2001-844634 20010427 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2958
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Tumor Necrosis Factor Receptor 2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Tumor Necrosis Factor Receptor 2. Methods of using these compounds for modulation of Tumor Necrosis Factor Receptor 2 expression and for treatment of diseases associated with expression of Tumor Necrosis Factor Receptor 2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 41 OF 56 USPATFULL
AN 2002:129789 USPATFULL
TI Antisense modulation of interleukin 12 p35 subunit expression
IN Baker, Brenda F., Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6399379 B1 20020604

09567863

AI US 2001-851520 20010507 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2883
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Interleukin 12 p35 subunit. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Interleukin 12 p35 subunit. Methods of using these compounds for modulation of Interleukin 12 p35 subunit expression and for treatment of diseases associated with expression of Interleukin 12 p35 subunit are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 42 OF 56 USPATFULL
AN 2002:129788 USPATFULL
TI Antisense modulation of RECQL2 expression
IN Ward, Donna T., Murrieta, CA, United States
Watt, Andrew T., Vista, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6399378 B1 20020604
AI US 2001-798096 20010301 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2748
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of RECQL2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding RECQL2. Methods of using these compounds for modulation of RECQL2 expression and for treatment of diseases associated with expression of RECQL2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 43 OF 56 USPATFULL
AN 2002:122486 USPATFULL
TI Antisense modulation of BCAS1 expression
IN Cowsert, Lex M., Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6395544 B1 20020528
AI US 2000-689255 20001011 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, Mary
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1

09567863

DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2619
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of BCAS1. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding BCAS1. Methods of using these compounds for modulation of BCAS1 expression and for treatment of diseases associated with expression of BCAS1 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 44 OF 56 USPATFULL
AN 2002:108885 USPATFULL
TI Antisense inhibition of A20 expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6387699 B1 20020514
AI US 2000-658687 20000908 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Wang, Andrew; Assistant Examiner: Jacourciere, Karen A
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2821
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of A20. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding A20. Methods of using these compounds for modulation of A20 expression and for treatment of diseases associated with expression of A20 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 45 OF 56 USPATFULL
AN 2002:95602 USPATFULL
TI Antisense modulation of damage-specific DNA binding protein 2, p48 expression
IN Popoff, Ian, Encinitas, CA, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6379960 B1 20020430
AI US 2000-732199 20001206 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Schmidt, M
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2774
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Damage-specific DNA binding protein 2, p48. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Damage-specific DNA

binding protein 2, p48. Methods of using these compounds for modulation of Damage-specific DNA binding protein 2, p48 expression and for treatment of diseases associated with expression of Damage-specific DNA binding protein 2, p48 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 46 OF 56 USPATFULL
AN 2002:60923 USPATFULL
TI Single-molecule **selection** methods and compositions therefrom
IN Cubicciotti, Roger S., Montclair, NJ, UNITED STATES
PI US 2002034757 A1 20020321
AI US 2001-907385 A1 20010717 (9)
RLI Continuation of Ser. No. US 1998-81930, filed on 20 May 1998, GRANTED, Pat. No. US 6287765
DT Utility
FS APPLICATION
LREP LICATA & TYRRELL P.C., 66 E. MAIN STREET, MARLTON, NJ, 08053
CLMN Number of Claims: 129
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 15716
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Single-molecule **selection** methods are provided for identifying target-binding molecules from diverse sequence and shape libraries. Complexes and imprints of **selected** target-binding molecules are also provided. The subject **selection** methods are used to identify oligonucleotide and nonnucleotide molecules with desirable properties for use in pharmaceuticals, drug discovery, drug delivery, diagnostics, medical devices, cosmetics, agriculture, environmental remediation, smart materials, packaging, microelectronics and nanofabrication. Single oligonucleotide molecules with desirable binding properties are **selected** from diverse sequence libraries and identified by amplification and sequencing. Alternatively, **selected** oligonucleotide molecules are identified by sequencing without amplification. Nonnucleotide molecules with desirable properties are identified by single-molecule **selection** from libraries of conjugated molecules or nucleotide-encoded nonnucleotide molecules. Alternatively, target-specific nonnucleotide molecules are prepared by imprinting **selected** oligonucleotide molecules into nonnucleotide molecular media. Complexes and imprints of molecules identified by single-molecule **selection** are shown to have broad utility as drugs, prodrugs, drug delivery systems, willfully reversible cosmetics, diagnostic reagents, sensors, transducers, actuators, adhesives, adherents and novel multimolecular devices.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 47 OF 56 USPATFULL
AN 2002:60922 USPATFULL
TI Method of detection by enhancement of silver staining
IN Letsinger, Robert L., Wilmette, IL, UNITED STATES
Garimella, Viswanadham, Evanston, IL, UNITED STATES
PI US 2002034756 A1 20020321
AI US 2001-903461 A1 20010711 (9)
PRAI US 2000-217782P 20000711 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 30
ECL Exemplary Claim: 1

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DRWN 5 Drawing Page(s)
LN.CNT 558
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The present invention relates to a method for amplifying a detection signal by enhancing or promoting the deposition of additional silver in assay detection systems where the formation of a silver spot serves as a reporter for the presence of a target molecule, including biological polymers (e.g., proteins and nucleic acids) and small molecules.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 48 OF 56 USPATFULL
AN 2002:50831 USPATFULL
TI Antisense inhibition of integrin beta 4 binding protein expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6355482 B1 20020312
AI US 2000-716161 20001117 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean; Assistant Examiner: Lacourciere, Karen A.
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 14
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3155
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of Integrin beta 4 binding protein. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding Integrin beta 4 binding protein. Methods of using these compounds for modulation of Integrin beta 4 binding protein expression and for treatment of diseases associated with expression of Integrin beta 4 binding protein are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 49 OF 56 USPATFULL
AN 2002:45498 USPATFULL
TI Antisense modulation of BTAK expression
IN Cowsert, Lex M., Carlsbad, CA, United States
Freier, Susan M., San Diego, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6352858 B1 20020305
AI US 2000-660925 20000911 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 2985
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of BTAK. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic

acids encoding BTAK. Methods of using these compounds for modulation of BTAK expression and for treatment of diseases associated with expression of BTAK are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 50 OF 56 USPATFULL
AN 2002:29278 USPATFULL
TI Antisense inhibition of HPK/GCK-like kinase expression
IN Dean, Nicholas M., Olivenhain, CA, United States
Cowsert, Lex M., Carlsbad, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6346416 B1 20020212
AI US 2000-651011 20000829 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean; Assistant Examiner: Lacourciere, Karen A
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 26
ECL Exemplary Claim: 1
DRWN 0 Drawing Figure(s); 0 Drawing Page(s)
LN.CNT 3123
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of HPK/GCK-like kinase. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding HPK/GCK-like kinase. Methods of using these compounds for modulation of HPK/GCK-like kinase expression and for treatment of diseases associated with expression of HPK/GCK-like kinase are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 51 OF 56 USPATFULL
AN 2001:226467 USPATFULL
TI Antisense modulation of glioma-associated oncogene-1 expression
IN Bennett, C. Frank, Carlsbad, CA, United States
Wyatt, Jacqueline, Encinitas, CA, United States
PA ISIS Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6329203 B1 20011211
AI US 2000-657042 20000908 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: McGarry, Sean; Assistant Examiner: Nguyen, Lauren
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 2725
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of glioma-associated oncogene-1. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding glioma-associated oncogene-1. Methods of using these compounds for modulation of glioma-associated oncogene-1 expression and for treatment of diseases associated with expression of glioma-associated oncogene-1 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 52 OF 56 USPATFULL
AN 2001:152673 USPATFULL
TI Methods for detecting and identifying single molecules
IN Cubicciotti, Roger S., Montclair, NJ, United States
PA Molecular Machines, Inc., Montclair, NJ, United States (U.S. corporation)
PI US 6287765 B1 20010911
AI US 1998-81930 19980520 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Fredman, Jeffrey
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 27
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 15456
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Multimolecular devices and drug delivery systems prepared from synthetic heteropolymers, heteropolymeric discrete structures, multivalent heteropolymeric hybrid structures, aptameric multimolecular devices, multivalent imprints, tethered specific recognition devices, paired specific recognition devices, nonaptameric multimolecular devices and immobilized multimolecular structures are provided, including molecular adsorbents and multimolecular adherents, adhesives, transducers, switches, sensors and delivery systems. Methods for **selecting** single synthetic nucleotides, shape-specific probes and specifically attractive surfaces for use in these multimolecular devices are also provided. In addition, paired nucleotide-nonnucleotide mapping libraries for transposition of **selected** populations of **selected** nonoligonucleotide molecules into **selected** populations of replicatable nucleotide sequences are described.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 53 OF 56 USPATFULL
AN 2001:136441 USPATFULL
TI Antisense inhibition of MADH6 expression
IN Monia, Brett P., La Costa, CA, United States
Cowsert, Lex M., Carlsbad, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6277636 B1 20010821
AI US 2000-662249 20000914 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: LeGuyader, John L.; Assistant Examiner: Lacourciere, Karen A
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 13
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 2687
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of MADH6. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding MADH6. Methods of using these compounds for modulation of MADH6 expression and for treatment of diseases associated with expression of MADH6 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 54 OF 56 USPATFULL
AN 2001:107686 USPATFULL
TI Antisense modulation of ubiquitin protein ligase expression
IN Monia, Brett P., La Costa, CA, United States
Cowsert, Lex M., Carlsbad, CA, United States
PA Isis Pharmaceuticals, Inc., Carlsbad, CA, United States (U.S. corporation)
PI US 6258601 B1 20010710
AI US 2000-657481 20000907 (9)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Schwartzman, Robert A.; Assistant Examiner: Schmidt, M.
LREP Licata & Tyrrell P.C.
CLMN Number of Claims: 16
ECL Exemplary Claim: 1
DRWN No Drawings
LN.CNT 2928
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense compounds, compositions and methods are provided for modulating the expression of ubiquitin protein ligases WWP1 and WWP2. The compositions comprise antisense compounds, particularly antisense oligonucleotides, targeted to nucleic acids encoding ubiquitin protein ligases WWP1 and WWP2. Methods of using these compounds for modulation of ubiquitin protein ligases WWP1 and WWP2 expression and for treatment of diseases associated with expression of ubiquitin protein ligases WWP1 and WWP2 are provided.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 55 OF 56 USPATFULL
AN 2001:93490 USPATFULL
TI Antisense oligonucleotide compositions targeted to angiotensin converting enzyme MRNA and methods of use
IN Moore, Mark D., Houston, TX, United States
Phillips, M. Ian, Gainesville, FL, United States
Mohuczy, Dagmara, Gainesville, FL, United States
PA University of Florida, Gainesville, FL, United States (U.S. corporation)
PI US 6248724 B1 20010619
AI US 1998-162484 19980925 (9)
PRAI US 1997-59661P 19970925 (60)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Schwartzman, Robert A.; Assistant Examiner: Epps, Janet
LREP Williams, Morgan & Amerson, P.C.
CLMN Number of Claims: 59
ECL Exemplary Claim: 1
DRWN 2 Drawing Figure(s); 1 Drawing Page(s)
LN.CNT 4383
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB Antisense oligonucleotides specific for mammalian ACE mRNA have been identified. Administration of these oligonucleotides to animals resulted in a decrease in blood pressure, but no significant change in heart rate. Methods for discovering other oligonucleotides with the same activity are taught, as are uses of the antisense molecules for treatment of human and animal diseases.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L8 ANSWER 56 OF 56 USPATFULL

09567863

AN 2001:51845 USPATFULL
TI Conjugates of a particle vector and oligonucleotides, process for their preparation, and pharmaceutical compositions containing them
IN Betbeder, Didier, Aucamville, France
Kravtzoff, Roger, Fourquevaux, France
de Miguel, Ignacio, Plaisance du Touch, France
Sixou, Sophie, Toulouse, France
Pavco, Pamela, Lafayette, CO, United States
Jarvis, Thale, Boulder, CO, United States
PA Biovector Therapeutics, S.A., Labege Cedex, France (non-U.S. corporation)
PI US 6214621 B1 20010410
WO 9829557 19980709
AI US 1999-331912 19990930 (9)
WO 1997-FR2332 19971227
19990930 PCT 371 date
19990930 PCT 102(e) date
PRAI FR 1996-16121 19961227
DT Utility
FS Granted
EXNAM Primary Examiner: Yucel, Remy; Assistant Examiner: Zara, Jane
LREP Hoffmann & Baron, LLP, Feit, Irving N.
CLMN Number of Claims: 30
ECL Exemplary Claim: 1
DRWN 10 Drawing Figure(s); 10 Drawing Page(s)
LN.CNT 1222
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention relates to an ionic conjugate, which is stable in a biological medium, and which is comprised of a particle vector with at least one cationic, nonliquid, hydrophilic nucleus and of polyanionic oligonucleotides. The invention further concerns the pharmaceutical compositions containing these conjugates and the use of a particle vector to carry the oligonucleotides to the cells.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

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=> s (nanospheres or nanostructures) (3a) conjugate? (3a) oligonucleotide?
L10 22 (NANOSPHERES OR NANOSTRUCTURES) (3A) CONJUGATE? (3A) OLIGONUCLEO
TIDE?

=> dup rem l10
PROCESSING COMPLETED FOR L10
L11 19 DUP REM L10 (3 DUPLICATES REMOVED)

=> d l11 bib abs 1-19

L11 ANSWER 1 OF 19 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 1
AN 2003:77415 CAPLUS
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Park, So-Jung
PA USA
SO U.S. Pat. Appl. Publ., 178 pp., Cont.-in-part of U.S. Ser. No. 760,500.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 9804740	A1	19980205	WO 1997-US12783	19970721
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 6361944	B1	20020326	US 1999-344667	19990625
	US 2002155442	A1	20021024	US 2001-760500	20010112
	WO 2001073123	A2	20011004	WO 2001-US10071	20010328
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	WO 2002018643	A2	20020307	WO 2001-US25237	20010810
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2001081248	A5	20020313	AU 2001-81248	20010810
	US 2002172953	A1	20021121	US 2001-927777	20010810
	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,				

GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL,
PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG,
US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
AU 2002030593 A5 20020618 AU 2002-30593 20011207
WO 2002079490 A2 20021010 WO 2002-US11158 20020327
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH,
GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ,
UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU,
TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH,
CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR,
BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
US 2002192687 A1 20021219 US 2002-108211 20020327
PRAI US 1996-31809P P 19960729
WO 1997-US12783 A2 19970721
US 1999-240755 B2 19990129
US 1999-344667 A2 19990625
US 2000-176409P P 20000113
US 2000-192699P P 20000328
US 2000-200161P P 20000426
US 2000-254392P P 20001208
US 2000-255235P P 20001211
US 2001-760500 A2 20010112
US 1996-31809 A 19960729
US 2000-213906P P 20000626
US 2000-603830 A 20000626
US 2000-224631P P 20000811
US 2000-254418P P 20001208
US 2000-255236P P 20001211
US 2001-820279 A 20010328
WO 2001-US10071 W 20010328
US 2001-282640P P 20010409
US 2001-927777 A 20010810
WO 2001-US25237 W 20010810
US 2001-350560P P 20011113
WO 2001-US46418 W 20011207

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compns. and kits comprising particles. Also disclosed is a method of sepg. a selected nucleic acid from other nucleic acids. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Thus, a nanoparticle assembly was prepd. using streptavidin complexed to four biotinylated oligonucleotides, oligonucleotide-modified gold nanoparticles, and a linker oligonucleotide complementary to both the streptavidin-assocd. oligonucleotides and to the oligonucleotides attached to the gold nanoparticles. The chem. and phys.

properties of this assembly were studied. The streptavidin was not adsorbed to the gold nanoparticle surface due to the d. of the immobilized oligonucleotides. This expt. therefore points towards a way of specifically immobilizing proteins on nanoparticle surfaces through very specific interactions in a way that will not substantially perturb the activity of the protein.

L11 ANSWER 2 OF 19 USPATFULL
AN 2003:13189 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, United States
Letsinger, Robert L., Wilmette, IL, United States
Mucic, Robert C., Glendale, CA, United States
Storhoff, James J., Evanston, IL, United States
Elghanian, Robert, Chicago, IL, United States
Taton, Thomas A., Chicago, IL, United States
PA Nanosphere, Inc., Northbrook, IL, United States (U.S. corporation)
PI US 6506564 B1 20030114
AI US 2000-603830 20000626 (9)
RLI Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999
Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999
Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997
PRAI US 2000-200161P 20000426 (60)
US 1996-31809P 19960729 (60)
DT Utility
FS GRANTED
EXNAM Primary Examiner: Riley, Jezia
LREP McDonnell Boehnen Hulbert & Berghoff
CLMN Number of Claims: 42
ECL Exemplary Claim: 1
DRWN 84 Drawing Figure(s); 47 Drawing Page(s)
LN.CNT 5976
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 3 OF 19 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 2
AN 2002:889442 CAPLUS
DN 137:380916
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Garimella, Viswanadham; Li, Zhi; Park, So-jung
PA USA
SO U.S. Pat. Appl. Publ., 181 pp., Cont.-in-part of U.S. Ser. No. 820,279.
CODEN: USXXCO

09567863

DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002172953	A1	20021121	US 2001-927777	20010810
	WO 9804740	A1	19980205	WO 1997-US12783	19970721
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 6361944	B1	20020326	US 1999-344667	19990625
	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 2002046472	A2	20020613	WO 2001-US46418	20011207
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	AU 2002030593	A5	20020618	AU 2002-30593	20011207
PRAI	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	B2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-603830	A2	20000626		
	US 2000-224631P	P	20000811		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2001-760500	A2	20010112		
	US 2001-820279	A2	20010328		
	US 1996-31809	A	19960729		
	US 2000-213906P	P	20000626		
	US 2000-254418P	P	20001208		
	US 2000-255236P	P	20001211		
	US 2001-282640P	P	20010409		
	US 2001-927777	A	20010810		
	WO 2001-US46418	W	20011207		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. Conjugates produced by contact of oligonucleotides with gold nanoparticles

and incubation (aging) with salt soln. to overcome electrostatic repulsion exhibit improved stability with a surface d. dependent on the size and type of nanoparticles and on the length, sequence and concn. of the oligonucleotides. A surface d. of .gtoreq.10 pmol/cm2 is adequate to provide stable nanoparticle-oligonucleotide conjugates. Due to high surface d., the conjugates assemble into large aggregates in the presence of a target nucleic acid or oligonucleotide and a single base mismatch and as little as 20 fmol of target can be detected using the conjugates. Hybridization efficiency can be increased dramatically by the the use of recognition oligonucleotides which comprise a recognition portion and a spacer portion. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a selected nucleic acid from other nucleic acids. Many modifications of this basic method were examd., e.g., combined use of fluorophore-labeled oligonucleotide-modified latex microspheres and oligonucleotide-modified gold nanoparticles, prepn. and use of oligonucleotide-quantum dot conjugates, detection of oligonucleotide-gold nanoparticle conjugates bound to DNA microarrays by silver staining, etc. New thiol reagents for derivatization of oligonucleotides which result in more stable oligonucleotide-nanoparticle bonds were synthesized and used. These thiol reagents included phosphoramidates of a steroid disulfide ketal and a trithiol compd. Gold nanoparticle assemblies behave as semiconductors, regardless of oligonucleotide particle interconnect length over a 24-72-nucleotide range. Finally, a method is described of moving nanoparticles such as citrate-stabilized nanoparticles and nanoparticles coated with charged biomols. through an elec. field.

L11 ANSWER 4 OF 19 CAPLUS COPYRIGHT 2003 ACS DUPLICATE 3
AN 2002:814729 CAPLUS
DN 137:334003
TI Nanoparticle-oligonucleotide conjugates, methods of making them and nanostructures, and their use in detecting and separating nucleic acids
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas A.; Garimella, Viswanadham; Li, Zhi
PA USA
SO U.S. Pat. Appl. Publ., 141 pp., Cont.-in-part of U.S. 6,361,944.
CODEN: USXXCO
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002155442	A1	20021024	US 2001-760500	20010112
	WO 9804740	A1	19980205	WO 1997-US12783	19970721
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	US 6361944	B1	20020326	US 1999-344667	19990625
	WO 2001051665	A2	20010719	WO 2001-US1190	20010112
	WO 2001051665	C2	20021031		
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				

RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
WO 2001073123 A2 20011004 WO 2001-US10071 20010328
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG
US 2003022169 A1 20030130 US 2001-820279 20010328
WO 2002018643 A2 20020307 WO 2001-US25237 20010810
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
AU 2001081248 A5 20020313 AU 2001-81248 20010810
US 2002172953 A1 20021121 US 2001-927777 20010810
WO 2002046472 A2 20020613 WO 2001-US46418 20011207
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG
AU 2002030593 A5 20020618 AU 2002-30593 20011207
PRAI US 1996-31809P P 19960729
WO 1997-US12783 A2 19970721
US 1999-240755 B2 19990129
US 1999-344667 A2 19990625
US 2000-176409P P 20000113
US 2000-200161P P 20000426
US 2000-213906P P 20000626
US 1996-31809 A 19960729
US 2000-192699P P 20000328
US 2000-603830 A 20000626
US 2000-224631P P 20000811
US 2000-254392P P 20001208
US 2000-254418P P 20001208
US 2000-255235P P 20001211
US 2000-255236P P 20001211
US 2001-760500 A 20010112
US 2001-820279 A 20010328
US 2001-282640P P 20010409
US 2001-927777 A 20010810
WO 2001-US25237 W 20010810
WO 2001-US46418 W 20011207

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have

sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a selected nucleic acid from other nucleic acids. Thus, gold colloid and two thiol-terminated oligonucleotides complementary to different regions of a target DNA were prepd. The presence of target DNA was indicated by appearance of a blue color. The target was detectable with femtomolar sensitivity. This method was applied to the detection of a PCR amplicon of anthrax protective antigen DNA. Many modifications of this basic method were examd., e.g., combined use of fluorophore-labeled oligonucleotide-modified latex microspheres and oligonucleotide-modified gold nanoparticles, prepn. and use of oligonucleotide-quantum dot conjugates, detection of oligonucleotide-gold nanoparticle conjugates bound to DNA microarrays by silver staining, etc. New thiol reagents for derivatization of oligonucleotides which result in more stable oligonucleotide-nanoparticle bonds were synthesized and used. These thiol reagents included phosphoramidates of a steroid disulfide ketal and a trithiol compd.

L11 ANSWER 5 OF 19 USPATFULL
AN 2002:322449 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182613 A1 20021205
AI US 2001-976971 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 172
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6563
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits

comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 6 OF 19 USPATFULL
AN 2002:322447 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002182611 A1 20021205
AI US 2001-966491 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 190
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 6646
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing the nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 7 OF 19 USPATFULL
AN 2002:294562 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Chicago, IL, UNITED STATES
Taton, Thomas A., Chicago, IL, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002164605 A1 20021107
AI US 2001-966312 A1 20010928 (9)

09567863

RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8066
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 8 OF 19 USPATFULL
AN 2002:287518 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002160381 A1 20021031
AI US 2001-975498 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, PENDING Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 5695
CAS INDEXING IS AVAILABLE FOR THIS PATENT.

09567863

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 9 OF 19 USPATFULL
AN 2002:280028 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155462 A1 20021024
AI US 2001-976577 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8047
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

09567863

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 10 OF 19 USPATFULL
AN 2002:280027 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas Andrew, Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155461 A1 20021024
AI US 2001-976378 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8052
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 11 OF 19 USPATFULL
AN 2002:280025 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155459 A1 20021024
AI US 2001-975062 A1 20011011 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999,

GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8059
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 12 OF 19 USPATFULL
AN 2002:280024 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002155458 A1 20021024
AI US 2001-967409 A1 20010928 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP MCDONNELL BOEHNEN HULBERT & BERGHOFF, 300 SOUTH WACKER DRIVE, SUITE 3200, CHICAGO, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8059
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles

having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 13 OF 19 USPATFULL
AN 2002:265844 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002146720 A1 20021010
AI US 2001-961949 A1 20010920 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8063
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 14 OF 19 USPATFULL
AN 2002:251128 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137072 A1 20020926
AI US 2001-976617 A1 20011012 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8061
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 15 OF 19 USPATFULL
AN 2002:251127 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137071 A1 20020926
AI US 2001-974007 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of

Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8063
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 16 OF 19 USPATFULL
AN 2002:251126 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002137070 A1 20020926
AI US 2001-973638 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8060
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have

sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 17 OF 19 USPATFULL
AN 2002:235385 USPATFULL
TI Nanoparticles having oligonucleotides attached thereto and uses therefor
IN Mirkin, Chad A., Wilmette, IL, UNITED STATES
Letsinger, Robert L., Wilmette, IL, UNITED STATES
Mucic, Robert C., Glendale, CA, UNITED STATES
Storhoff, James J., Evanston, IL, UNITED STATES
Elghanian, Robert, Skokie, IL, UNITED STATES
Taton, Thomas A., Little Canada, MN, UNITED STATES
PA Nanosphere, Inc. (U.S. corporation)
PI US 2002127574 A1 20020912
AI US 2001-973788 A1 20011010 (9)
RLI Continuation of Ser. No. US 2000-603830, filed on 26 Jun 2000, PENDING Continuation-in-part of Ser. No. US 1999-344667, filed on 25 Jun 1999, GRANTED, Pat. No. US 6361944 Continuation-in-part of Ser. No. US 1999-240755, filed on 29 Jan 1999, ABANDONED Continuation-in-part of Ser. No. WO 1997-US12783, filed on 21 Jul 1997, UNKNOWN
PRAI US 1996-31809P 19960729 (60)
US 2000-200161P 20000426 (60)
DT Utility
FS APPLICATION
LREP Emily Miao, McDonnell Boehnen Hulbert & Berghoff, 32nd Floor, 300 S. Wacker Drive, Chicago, IL, 60606
CLMN Number of Claims: 431
ECL Exemplary Claim: 1
DRWN 46 Drawing Page(s)
LN.CNT 8060
CAS INDEXING IS AVAILABLE FOR THIS PATENT.
AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compositions and kits comprising particles. The invention further provides methods of synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addition, the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of separating a selected nucleic acid from other nucleic acids.

CAS INDEXING IS AVAILABLE FOR THIS PATENT.

L11 ANSWER 18 OF 19 CAPLUS COPYRIGHT 2003 ACS
AN 2001:731085 CAPLUS

09567863

DN 135:283930
TI Nanoparticle-oligonucleotide conjugates and their uses in nucleic acid detection and nanomaterial preparation
IN Mirkin, Chad A.; Letsinger, Robert L.; Mucic, Robert C.; Storhoff, James J.; Elghanian, Robert; Taton, Thomas Andrew; Park, So-Jung; Li, Zhi
PA Nanosphere Inc., USA
SO PCT Int. Appl., 403 pp.
CODEN: PIXXD2
DT Patent
LA English
FAN.CNT 13

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001073123	A2	20011004	WO 2001-US10071	20010328
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	US 6506564	B1	20030114	US 2000-603830	20000626
	US 2002155442	A1	20021024	US 2001-760500	20010112
	US 2003022169	A1	20030130	US 2001-820279	20010328
	WO 2002079490	A2	20021010	WO 2002-US11158	20020327
	W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
	US 2002192687	A1	20021219	US 2002-108211	20020327
PRAI	US 2000-192699P	P	20000328		
	US 2000-200161P	P	20000426		
	US 2000-213906P	P	20000626		
	US 2000-603830	A	20000626		
	US 2000-254392P	P	20001208		
	US 2000-255235P	P	20001211		
	US 2001-760500	A	20010112		
	US 2001-820279	A	20010328		
	US 1996-31809P	P	19960729		
	WO 1997-US12783	A2	19970721		
	US 1999-240755	A2	19990129		
	US 1999-344667	A2	19990625		
	US 2000-176409P	P	20000113		
	WO 2001-US10071	W	20010328		
	US 2001-350560P	P	20011113		

AB The invention provides methods of detecting a nucleic acid. The methods comprise contacting the nucleic acid with one or more types of particles having oligonucleotides attached thereto. In one embodiment of the method, the oligonucleotides are attached to nanoparticles and have sequences complementary to portions of the sequence of the nucleic acid. A detectable change (preferably a color change) is brought about as a result of the hybridization of the oligonucleotides on the nanoparticles to the nucleic acid. The invention also provides compns. and kits comprising particles. The invention further provides methods of

synthesizing unique nanoparticle-oligonucleotide conjugates, the conjugates produced by the methods, and methods of using the conjugates. In addn., the invention provides nanomaterials and nanostructures comprising nanoparticles and methods of nanofabrication utilizing nanoparticles. Finally, the invention provides a method of sepg. a selected nucleic acid from other nucleic acids.

L11 ANSWER 19 OF 19 CAPLUS COPYRIGHT 2003 ACS
AN 2001:338858 CAPLUS
DN 134:357569
TI Composite nanospheres and their conjugates with biomolecules
IN Elaissari, Abdelhamid; Bosc, Eric; Pichot, Christian; Mandrand, Bernard; Bibette, Jerome
PA Bio Merieux, Fr.; Centre National de la Recherche Scientifique; Mondain-Monval, Olivier
SO PCT Int. Appl., 28 pp.
CODEN: PIXXD2
DT Patent
LA French
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI WO 2001033223	A1	20010510	WO 2000-FR3085	20001106
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
FR 2800635	A1	20010511	FR 1999-14194	19991105
FR 2800635	B1	20020726		
EP 1226438	A1	20020731	EP 2000-974662	20001106
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRAI FR 1999-14194	A	19991105		
WO 2000-FR3085	W	20001106		

AB The invention concerns composite nanospheres having a diam. ranging between about 50 and 1000 nm plus or minus 5 , preferably between about 100 and 500 nm plus or minus 5 and advantageously between 100 and 200 nm plus or minus 5 , and comprising an essentially liq. core consisting of an org. phase and inorg. nanoparticles, distributed inside the org. phase, and a skin consisting of at least a hydrophilic polymer derived from the polymn. of at least one water sol. monomer, in particular N-alkylacrylamide or a N-N-dialkylacrylamide; conjugates derived from said nanospheres; their prepn. methods and their uses. Composite nanospheres with 192 nm diam. were prepd. by polymn. of styrene, N-isopropylacrylamide-methylene bisacrylamide, and methacrylic acid in an emulsion. The amt. of iron oxide in the nanospheres was 75%.
RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> d l11 19 kwic

L11 ANSWER 19 OF 19 CAPLUS COPYRIGHT 2003 ACS
IT **Oligonucleotides**
RL: THU (Therapeutic use); BIOL (Biological study); USES (Uses)
(biotinylated; composite **nanospheres** and their **conjugates** with biomols.)

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